

THAALAVAADYA SEMINAR-4

*Proceedings of
The Taalavaadya Seminar - 4 and allied papers*

Compiled and Edited by
Bangalore K. Venkataram

Published by

PERCUSSIVE ARTS CENTRE (Regd.)

(Palghat Mani Iyer Memorial Art Centre)

183, 8th Cross, 2nd Block, Jayanagar, Bangalore - 560 011. INDIA

Ph : (080) - 6630079

PERCUSSIVE ARTS CENTRE (REGD.)

183, 8th Cross, 2nd Block, Jayanagar, Bangalore - 560 011.

ABOUT THE ART CENTRE AND PUBLICATIONS ETC

".....I appreciate the excellent work done in the field of Taala - by you. I am proud to have friends like you and it is my earnest desire that you may succeed in all the ventures that you undertake in the field of music." ...

Pandit Nikhil Ghosh, Bombay

".... The Percussive Arts Centre, Bangalore, under the able direction of Sri Bangalore K. Venkataram deserves all compliments, for having undertaken to print and publish Taala Sangraha I am sure that this will be a very valuable contribution to the field of music....."

Padmabhushan Dr. V. Doreswamy Iyengar

".....The Percussive Arts Centre formed some years back to make people better informed about this area of music. This Centre through a series of programmes including papers, demonstrations etc has highlighted the manifold aspects of Tala and Laya as to inform even lay people. Some of them have been published in the form of monographs. But the major event is Annual Taalavaadyothsava where emphasis is on Thala and Laya. Perhaps, this is the only such Festival held in the country....."

Justice E.S. Venkataramiah

"..... As I see from Delhi *"This conference has a significance and a validity beyond what has been discussed"* here. I can say so with some authority as I am here, presently chairing a Committee in UNESCO which is having very "knowledgeable" discussions on cultural dimensions of development. It would also be appropriate to me that *"the establishment of the Percussive Arts Centre itself has been an important event."* The development of the Centre within a short time to the present status, we owe to Venkataram. Bangalore and Venkataram have become inseparable. *"Institutions like the Percussive Arts Centre, Seminars and conferences such as of today, I am sure contribute a great deal towards these objectives."*

J. Veeraraghavan, Delhi

"....I am happy that the Percussive Art Centre of Bangalore has come forward to undertake Publishing this work (Taala Sangraha, a compendium of Taalas in Karnatak music). I welcome and appreciate their gesture. It is noticed that the Percussive Art Centre has been striving to enlighten the general public on the proper appreciation of the art of laya and highlight the contribution of Layavadyakaras. I wish well in their sincere efforts to promote the interest in laya"

Padma Vibhushan Dr. M. Balamurali Krishna

"..... To my knowledge, there does not appear to be any periodical exclusively devoted to these (persuance of the cause of promotion of Laya and Thaala) aspects of music and your venture will go a long way in bridging this gap and in giving emphasis to the Laya and Thala which are so essential in perception, preservation and propogation of music....."

H. Kamalanath, President, Bangalore Gayana Samaja

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A collection of papers presented during the **Taalavaadya Seminar - 4** organised by Percussive Arts Centre in Bangalore on 11 and 12th February 1998 under financial assistance of Sangeeth Natak Akademi, New Delhi, and relevant papers published by the Percussive Arts Centre, Bangalore.

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NOTES

1. The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is well-posed and that the solution is unique. The second part of the paper is devoted to the construction of the solution. It is shown that the solution can be constructed by the method of characteristics. The third part of the paper is devoted to the numerical solution of the problem. It is shown that the numerical solution can be constructed by the method of finite differences. The fourth part of the paper is devoted to the stability analysis of the numerical solution. It is shown that the numerical solution is stable. The fifth part of the paper is devoted to the conclusion. It is shown that the problem is well-posed and that the solution is unique.

Editor's Note...

By now, it is quite well known that the Percussive Arts Centre has been working for the promotion of Percussive Arts and perhaps the only such organisation of this kind. Among the several programmes organised by the Percussive Art Centre including Study circles, Symposia, Talent promotion and Inter State Cultural Exchange schemes, **Documentation** of material generated on the Percussive instruments not easily available hitherto in exclusive editions, receives priority; generation of data on various aspects - historical, textual, scientific, artistic and other areas has been the primary object of these Seminars on Taalavaadyaas.

Publications of the proceedings of the Talavadya Seminar - I in 1994 by the Karnataka Sangeetha Nruthya Academy, containing the physics of Indian Drums, Talavadyas of different regions, studies on Leathers & Woods, used in Drums, concept of rhythm in Western Music, Role of Talavadyas in the two Indian classical systems, etc., Seminar - 2 in March 1993 organised by our Art Centre which highlighted Khanjari (Kanjira) & Ghata, have been received well. The edition of the proceedings of the Talavadya Seminar - 3 organised in December 1993 under joint auspices with the Madras Kendra of the Bharatiya Vidya Bhavan, contain data on Dolu (Thavil). Morching, Gethuvadya is expected to be useful to practitioners of these branches of the percussion art and will create an awareness among them. This Seminar, 4th in the series, containing details pertaining to Tabla, Pakhwaj & Naquara. Infact, it became very difficult to trace practitioners of Naquara and the help of N.S. Krishnamurthy, former station director, AIR and K. Vageesh, Asst. Director, Directorate of AIR is remembered. The Sangeet Natak Akademi, New Delhi have helped in organising this Seminar and we are grateful to them.

We are beholden to the noted scholar Prof. R.C. Mehta of Baroda who has taken pains to read through this entire scripts and offered his erudite. Foreword. We convey our gratitutde to Dr. K.N. Bhowmik who could not participate due to his indisposition but still forwarded his papers for presentation as also Pandit Arvind Mulogaonkar who also could not participate due to unavoidable circumstances but sent his paper.

We are grateful to all the learned participants for their participation & papers. Kalavathy has helped by carrying out the corrections of scripts & allied jobs. M/s Pragathi have done an excellent job in typesetting the highly technical material.

We convey our gratitude to Vidushi Mrs. Anasuya Kulkarni, our Convenor, Mr. N. R. Kulkarni, our Hon, Director for their patronage in assisting to bring out this technical publication.

It is hoped that readers will benefit by this compilation as a reference volume and this publication will be received with interest by all. Suggestions for improvements are welcome.

Bangalore K. Venkataram

FOREWARD

Seminars provide opportunities for thoughtful writing and discussion. In India, seminars on music are few and far between, perhaps, on account of lack of sponsorship as well as lack of involvement in musical scholarship. **The Percussive Art Centre of Bangalore is unique in its own way focusing its attention mainly on the advancement of the percussion art music.** The fourth Talavadya seminar of PAC is a continuum of previous seminars.

The present volume is a collection of papers presented at the seminar. The event also gave scope for recitals of music, vocal and instrumental music (Sarod and Pakhavaj) to illustrate the role of solo art music as well as the art of accompaniment. Tabla and Pakhavaj, in Hindustani Art Music, have two facets of inter-related art music; the art of highly developed independent Solo recital and the 'applied' art of accompaniment to the performance of recital of vocal or instrumental melodic (Raga-based) art music - which facet has its own sophistication in contributing to the total music.

In this collection, we have five articles by Dr. K.N.Bhowmik, and one each by Rebecca Steward, Prof. M.R.Guatam, Sri B.M.Sundaram and Sri B.V.K. Sastri. Dr. Bhowmik covers, in his articles, the history of geneology of the Benaras school of Tabla playing, the art of Tabla playing in other Schools (Baaj) of Tabla playing, and a very detailed analysis of the actual craft of 'RIAZ', elaborate conscious play of bol-s necessary for the learning of the 'art' aspects.

Ms Stewart's article writes on the Modes of Rhythmic Expression in Contemporary Indian and Western Music (reproduced from the Madras Music Academy Journal of 1964). The matrix of the Sound and time has developed / evolved through cultural efflorescence through the centuries, the perceptions and traditions, the cyclic and non-cyclic employment of pulses in different systems are the art article, concludes with a quote from Tagore : "Our music draws the listener away beyond the limits of everyday, human joys and sorrows, and takes us to the lonely region of renunciation which lies at the root of the universe while European music leads us to a variegated dance through the endless rise and fall of human grief and joy". Even if we do not agree with the Tagore summation of our music, the poetic insight sets us to ponder over the experience of rhythm in music.

Dr. M.R. Gautam, in his well-documented article, dwells on the etymological roots of tala, laya, paata, Kala, etc., tracing the definitions to the Bharta Natya, Sangit Ratnakar, and the links with the Chanda-s and sahitya with a brief reference to Pakhwaj and the Naquara. Sri B.M. Sundaram's article briefly introduces Tabla, Pakhwaj and Naquara, while Sri B.V.K. Sastry gives a more elaborate introduction to Naquara, which has now become rare.

A mention must be made of Pandit Arvind Mulgaonkar's article on "Aesthetic Values and Definitions of the Traditional Bandhisheas of the Tabla", in which he draws the attention of the reader to 'daab-gaj', -peculiar to Tabla and a few folk instruments like the damru, - Defining the terminology used in Tabla playing is a part of teaching and learning methodology, words like bol, gat, tihai, sama, rela, khanda gat, etc, are, in a way, self-explanatory, but only the 'contents' provide the 'meaning' or the aesthetic experience. Pandit Arvind has quoted some rare and beautiful gat-s, from his own repertoire, which makes me rember Thirakwa Khasaheb's padhaht, and renderings of such gat-s.

This indeed is a valuable contribution to the literature on the Thala-Vadyas of India, and the Percussive Art Centre deserves our thanks for this publication.

Baroda
June 30, 1998

R.C. Mehta
Professor of Music, (Retd), M.S.
Hon. Secretary, Indian Musicological
Society, Bombay & Baroda.



KARNATAKA KALAA SHREE

H.S. ANASUYA KULKARNI & SRI N.R. KULKARNI

Vidushi Anasuya Kulkarni underwent training in Karnatak classical vocal music under the great violinists Sangeetha Kalarathna R.R. Keshavamurthy and Sangeetha Kalanidhi Mysore Chowdiah. She was a very popular vocalist and cut records for HMV & AIR. After her wedding with N.R. Kulkarni, Anasuya - Veena Kulkarni had opportunities to visit and stay in different countries round the globe, wherever Kulkarni was post on his UN assignments. She underwent training in Hindustani classical vocal under Mohd. Hussain Sarahang at Kabul.

With her in-depth knowledge of theory she is the first Indian to become an actual performer of music in Indonesia, Papua, New Guinea, Uganda, Bhutan etc. Anasuya has adapted "Angklung" an Indonesian Bamboo rattle instrument to play Karnatak classical music; the Percussive Arts Centre released an audio cassette of this in May 98 in connection with their programmes to highlight the Achievements in the field of Percussive arts over these 50 years.

Sri Narayan Kulkarni hailing from Kanbur of Bijapur Dist, educated in Dharwar, Bijapur and Delhi had a short stint with the Bombay State Road Transport Corporation and Industrial Finance Corporation of India in New Delhi. He went to Kabul in Afghanistan in 1963 to work for Afghan Airlines. In 1964, Kulkarni joined the United Nations Technical Assistance Bureau, subsequently named as United Nations Development Programme (UNDP). During his tenure with UNDP, Kulkarni served in Afghanistan, Mangolia, Indonesia, Papua, New Guinea, Uganda, Ethiopia & Bhutan. Kulkarni is responsible in supporting his wife Veena, formerly & popularly known as H.S. Anasuya to take up study of musics of various countries in his different assignments.

Kulkarnis thus became cultural ambassadors of India and are propagating international corporation and understanding in their own unique ways.

Patrons of Art & Culture, Kulkarnis have sponsored this documentation work of the Art Centre with a view to preserve in cold print, the salient aspects of Taalavadyaas and their invaluble technicalities.

ERRATA

PAGE - LINE	PRINTED AS	TO BE READ AS
Front Inner cover - 24	"inseperable"	"Inseparable"
Facing Contents - 3	"Sangeeth"	"Sangeet"
Editor's Note i - 27	"Mulogaonkar"	"Mulgaonkar"
FOREWORD ii - 5	"continuum"	"continuum"
4 from bottom	"rember"	"remember"
iii - 7	"post"	"posted"
iii - 11	" <u>of</u> music <u>in</u> "	" <u>in</u> music <u>of</u> "
iii - 11 & 22	"Papua, New Guinea"	"Papua New Guinea" (Note : Papua New Guinea is the name of a country)
iii - 4 from bottom	"Corporation"	"Co-operation"
BACK COVER - 9	"senge"	"sense"
18	"unparalled"	"unparalleled"
20	"aclaim"	"acclaim"

SEMINAR - 4 on THAALA VAADYAAS

(Tabla, Pakhwaj and Naquara)

at YAVANIKA, State Youth Centre

Nrupatunga Road, Bangalore-560 001

on Wednesday 11-2-98 & Thursday 12-2-98

PROGRAMME

Wednesday, 11-2-98

at 6 p.m.

SESSION - 1:

Inaugural Key-note address by Dr. M.R. GAUTAM (former Vice Chancellor, Khairagarh University)

Paper Presentation by Sangeetha Sastra Kovida B.M. SUNDRAM, Pondicherry

Presidential remarks by Sangeetha Kalarathna B.V.K. SASTRY

Recital (Vocal) by Dr. M.R. GAUTAM

Sri. C.G. ANANTHASWAMY - Harmonium

Sri. VISHWANATH NAKOD - Tabla

Thursday 12-2-98

SESSION - 2

at 9.30 a.m.:

Lecture Demonstration - Tabla by Pandit L.D. DIXIT, New Delhi, Lehra Support by FIAZ KHAN - Sarangi.

Demonstration recital - Pakhwaj by Pandit PRAKASH SHEJWAL, Bombay. Theme base - Dhrupad recital (Vocal) by SAUDAMINI VENKATESH

Demonstration recital - Naquara by ASHFAQ KHAN, Aligarh

SESSION - 3

at 5.30 p.m. :

Lecture Demonstration on Tabla by RAVINDRA YAVGAL

Valedictory address by Pandit

Dr. RAJEEV TARANATH

Sarod recital by Dr. RAJEEV TARANATH

Sri RAVINDRA YAVGAL - Tabla

COURTESY : Sangeet Natak Akademi, New Delhi.

THAALAVAADYA SEMINAR - 4

(Tabla, Pakhwaj & Naquara)

PARTICIPANTS

1. **Dr. M.R. Gautam**
Former Vice Chancellor, Kairagarh University - Inaugural Key-note address ar recital.
1, 4th Cross, Central Excise Layout, Vijayanagar, Bangalore-560 040 (Tel. 3380501)
2. **Sangeetha Shastra Kovida B.M. Sundaram**
Paper Presentation, 54, Ramakrishnagar, Pondicherry-605003 (Tel : 0413-39594)
3. **Sangeetha Kalarathna B.V.K. Sastry**
Presidential Address. 99 (2), 2nd Main Road, Sheshadripuram, Bangalore - 560 020.
(Tel: 3342682)
4. **Sri C.G. Ananthaswamy** - Harmonium support.
966, Opp. ESI Hospital, 3rd Block, Rajajinagar, Bangalore - 560 010 (Tel. : 33044 (off), 3355678
5. **Sri. Vishwanath Nakod** - Tabla Support
332/A, 11th Cross, Mahalakshmi Layout, Behind Srinivasa Temple, Bangalore-560 086 (Tel.: 349624)
6. **Sri Fiaz Khan** - Sarangi Support
36/14, 18th Main, I Cross, Roshan Colony, BIB Area, Tilaknagar Bangalore
(Tel. : Pager - 9624 - 292606)
7. **Pandit Prakash Shejwal** - Pakhwaj recital
302, Jangamagia Apartments, Nahar Nagar, Mumlodar Wadi Extension, Malad (Wes Mumbai - 4600064 (Tel 022 - 8827548)
8. **Smt. Saudamini Venkatesh** - Dhrupad (Vocal) Theme base
307, 16th Cross, 8th Main, Sadashivanagar, Bangalore-560 080. Ph : 3342579
9. **Sri Ashfaq Khan** - Naquara recital
Mohalla Ladiya, Chunevali Gali, Aligarh - 202 001.
10. **Pandit L.D. Dixit** - Tabla & Pakhwaj
4/102, Shalimar Sterling Complex, Near Apsara Cinema, Raisen Road, Bhopal-462 023 Tel : 0755-598113
11. **Pandit Dr. Rajeev Taranath** - Valedictory address cum Sarod recital.
355, AECS Layout, Kundanahalli, Bangalore - 560 037 (Tel 8475498)
12. **Sri. Ravindra Yavgal** - Tabla Support
277, 2nd Cross, C.T. Building, III block, Thyagaraja Nagar, Bangalore - 560 038
(Tel 6601968)
13. **Sri D.H. Vittal Rao** - Tamboora Assistance
1, I Cross, Sudamanagar, Lalbagh Road, Bangalore - 560 027

OBSERVERS

1. Sri S.N. Chandrashekar, 67, Basappa Layout, Bangalore - 560 019 (Tel 6675758)
2. Sri. N.S. Krishna Murthy, 1826, 12th Main, 31st Cross, BSK 2nd Stage, Bangalore - 560 070 (Tel 6711151)
3. Pandit V. Rama Rao Naik, 64/A, 5th Cross, 3rd Main Chamarajpet, Bangalore - 560 018 (Tel 626913)
4. Sri Pandit Seshadri Gavai, 17/1, 3rd Main, Chamarajpet, Bangalore - 560 018 (Tel 6263371)
5. Pandit Vinayak Torvi, 4, 6th Cross, 40 Feet Road, 2nd Phase, Manjunathanagar, Bangalore - 560 010 (Tel 3305701)
6. Smt. Lalitha Ubhayakar - Nandeep, 15, Palace Road, Bangalore - 560 052.
7. Smt. Shyamala Bhave, Swarsatakar, Nehru Circle, Bangalore - 560 020.
8. Dr. R.B. Sontakke, Hindustani Sangeet Vidya Peet, Opp. Shankar Mutt, Shankar Mutt Road, Bangalore - 560 004 (Tel 6610055)
9. Sr. P.G. Srinivasa Murthy (Tel 6691032)

REPRESENTATIVES

(1) Karnataka Gana Kala Parishat - Ph : 3313272 (2) Bangalore Gayana Samaja-Ph: 606049 (3) Academy of Music, Bangalore - Ph : 3445810 (4) Malleshwaram Sangeetha Sabha - Ph : 3346271 (5) Ayyanar College of Music, Bangalore - Ph : 6630464 (6) Vijaya College of Music - Ph : 6636896 (7) Karnataka College of Percussion - Ph : 3441515 (8) Vani Institute of Music - Ph : 606611 (9) Gokhale Institute of Public Affairs - N.R. Colony - Ph : 6613148

DELEGATES

(10) A.V. Anand - Ph : 6650164 (11) M. Vasudeva Rao - Ph : 6625975 (12) K.N. Krishna Murthy - Ph : 3329049 (13) C. Cheluvvaraju - Ph : 3328361 (14) T.S. Chandrashekar - Ph : 3310485 (15) S.V. Giridhar (16) G.V. Krishna Prasad - Ph : 6715206 (17) B.K. Chandramouli - Ph : 3329372 (18) L. Bheemachar & Sons - Ph : 2216451 & 2215857 (Res) (19) M.A. Krishna Murthy - Ph : 3322971 (20) T. Srinivas - Ph : 6610784 (21) T. Ravi - Ph : 620132

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OBSERVERS - ASSISTANCE

(1) N.Sudarshan - Ph : 543764 (2) G. Omkar - Ph : 5538164 (3) R. Ramesh - Ph : 6671261 (4) R.N. Pratap - Ph : 3357943 (5) Ravishankar Sharma - Ph : 6122363 (6) R. Sathya Kumar - Ph : 620195 (7) Giridhar Udupa - Ph : 6670048 (8) S. Prashanth - Ph : 6615302 (9) N. Amrit - Ph : 629609 (10) B.C. Manjunath - Ph : 3329372 (11) A.S.N. Swamy - Ph : 8393821 (12) S.V. Balakrishna - Ph : 624564

THAALA VAADYA SEMINAR - 4

The Seminar-4 on Thaalavaadyaas organised by the Percussive Art Centre on the 11th and 12th February 1998 at YAVANIKA, State Youth Centre, highlighted the three Percussives Tabla, Pakhwaj and Naquara.

Dr. M.R.Gautam, Former Vice Chancellor, Khairagarah university, delivered the Key note address in the Inagural session and spoke on the 'Concept and Evolution of THAALA in Hindustani Music' and mentioned briefly some details of the 3 percussives (Paper Separately furnished). B.M.Sundaram, the Scholar Musicologist from Pondicherry, presented an interesting paper on the details of these instruments like the Etymology, antecedants etc. and particularly referred to the several Lady performers of these instruments.

B.V.K. Sastry, noted Art critic in his scholarly presidential address referred to the antiquity of these instruments and explained the Durlabh Vaadya Naquara and its usage, as different from Nagaari and Nagaara. He referred to the Percussive Arts Centre as conceived by Bangalore Venkataram and opined that it is the only organisation in India to project the Percussive Arts exclusively and referred to the various publications of the Arts Centre as a contribution in this branch of the Art. He explained the intricacies of Laya in the Indian percussive artistry as compared to the rest of the world.

Dr. M.R. Gautam gave a highly delectable vocal recital supported by Vishwanath Nakod on Tabla and C.G. Anantha Swamy on Harmonium.

In the morning academic session, Pandit L.D.Dixit of Delhi spoke on Tabla and played a solo recital supported by Fiaz Khan on Sarangi. Prakash Shejwal, son of noted Pakhwaj Maestro Pandit Arjun Shejwal, initially supported Saudamini Venkatesh who rendered a Dhrupad piece in 3 speeds and thrisra. Later, he provided a Solo recital on Pakhwaj supported by Fiaz Khan on Sarangi. Ustad Ashfaq Khan of Aligarh, son of Ustad Attam Khan, one of the rare artists of Naquara provided a solo recital of Naquara supported by Fiaz Khan, which was noteworthy for the artistic approach and high speed stroke-play with clarity.

In the post-valedictory session, Ravindra Yavgal rendered a highly competent Lecture Demonstration on Tabla explaining the different terminologies and names and played with aplomb. Fiaz Khan's support on Sarangi was highly melodic.

Dr. Rajeev Taranath delivered the Valedictory address followed by a highly delectable Sarod recital. Ravindra Yavgal provided competent Tabla support. A paper "Acoustical Random Bio-models for the System of Indian Drumming" by Prof. Dr. K.N. Bhowmick of Benaras Hindu University, Varanasi, was presented in absentia intended for future publication along with the proceedings.

The Sessions were participated by eminent practitioners of the art and scholars of repute. The Seminar was subsidised financially by the Sangeet Natak Akademi, Delhi.

CONCEPT AND EVOLUTION OF TALA IN HINDUSTANI MUSIC

by Prof. M. R. GAUTAM

The earliest available text on music in India which describe Tala as one of the constituent elements of music, is the *Natya-sastra* of Bharata (2nd Cent. B.C., to 2nd Cent. A.D.). There, Gandharva Sangita is defined as *Svara-tala-padatmakan* i.e., the organic unity of tone, rhythmic cycle and word. But at the same time, it is difficult to trace the origin of tala as far as the historical sources are concerned, since all the ancient musicologists such as Bharata and Dattila take it for granted to be a part and parcel of their musical heritage. Dattila, for instance, defines Gandharva "as a collection of musical notes (*Svara-sanghata*) sustained by a verbal text, well measured by tala and employed with attention and care." Thus, as far as written evidence goes, tala was already a developed concept and was recognised as an indispensable element of music.

The concept of tala in Indian Music, - I say Indian because till the 13th Cent. A.D., the tala system in the country was common to both Hindustani and Karnatak Music - is a complex one comprehending not only rhythm but also tempo and the measurement of musical time in a cyclic manner. The primary function of tala as defined by such celebrated musicologists as Bharata And Sarngadeva is to measure what may be called musical time³, and therefore cyclic recurrence is one of the most distinguishing features of the principles of tala. "In Vedic music, rhythm was observed in composition (*Sahitya*) with the help of metres (*Chanda*). Tunes were added to the row or stanzas and the row were constituted out of the letters, arranged in different metres. The row stanzas with tunes were the *Samaganas*"⁴ So, while the metrical composition of the *samans* provided the scope for rhythm, as far as the element of rhythm is concerned, as an essential feature of tala, there seems to be no evidence to suggest the notion of tala being implicit in the structure and singing of *Samagana*.

There are several texts in Sanskrit which deal on tala namely *Natyasastra*, *Dattilam*, *Brahaddesi*, *Bharata-bhasya*, *Abhinava-bharati*, *Manasaollasa*, *Sangitachudamani*, and *Sangitaratnakara*. *Sangita-Samayasara* and *Bharatarnava* are two other works that are to be considered as contemporary to Sarngadeva as they belong to the 13th Century, though the date of the latter is not definitely known.

A survey of modern literature on Indian music reveals that very little research work has indeed been done in the field of Tala. *Bharatiya Sangita* of Prof. Krishna Rao Mule (in Marathi) gives a brief account of tala and his *dhruva adhyayas* of the *Natyasastra* of Bharata is obviously based on the study of the *Sangitaratnakara* of Sarngadeva. Similarly the original Bengali work entitled *Bharatiya Sangita - Tala and Chanda* is more or less descriptive. Dr. K.C. Brahaspati's *Bharat Ka Sangita-Siddhanta* gives a very brief account of the principles related to tala as found in the *Natya Sastra* and the *Sangitaratnakara* with the help of the commentators *Abhinavagupta* and *Kallinatha* on these works respectively. The *Sangitasastra* of K. Vasudeva Sastra throws some light

1. Seen N.S. (G.O.S.) 28, 8 & 11

2. *Dattilam* 3

3. See N.S. (G.O.S.) IV. 31.1 and S.R., V.3., which defines tala as "Time, providing through action, measured by such units as *laghu* etc., the measurement of melody etc., is tala".

4. See Swami Prajananda, *Historical Development of Indian Music*, 1973, p. 422.

on the origin of **tala** from **Chanda** (metre) but does not aim at discovering and demonstrating the actual stages of development of **tala**.

Bharata defines **tala** as follows :

वाद्यं तु यद्यनं पौक्तं कलापातलया न्वितम् ।
कालस्तस्य पुमाणं हि विज्ञेयं तालयोगतः ॥

-N.S. (G.O.S.) 31.1

i.e., "The instrument called **ghana**, in association with **Kal ā** (silent or unsounding action) **p ā ta** (audible or sounding action) and **laya** (tempo) is to be known as having time for its measure in the use of **t ā la** (or by those who apply **t ā la** according to the other version)".

In other words, whereas the function of **tala** is to measure time, **kal ā**, **p ā ta** and **laya** provides the means by which it becomes possible to do so; and again for the manifestation of these three, **ghana** provides the material perpetual medium.

This exposition of **tala** can properly and fully be comprehended by understanding the related principles of **ghana**, **kat ā**, **p ā ta**, **lay ā** and **k ā la** (time).

Ghana has already been explained as the solid musical instrument used as the medium for the manifestation of **tal ā** and according to Bharata's perspective, the instrumental ensemble was classified into four types, viz., **tat ā**, **avanaddha**, **ghana** and **susira**. But distinguishing them by their characteristic properties and their role in a musical performance, he further divided them into two groups, viz., the ensemble of the stringed instruments (**tata kutapa**)¹ and the ensemble of covered instruments, i.e., drums (**Avanaddha kutapa**) including **Susira** (wind instruments) into the former and the **ghana** into the latter.²

This classification is, essentially based on his concept of **svara** (tone) which he says is two fold viz., body-based (**sarirah**) and based on stringed instruments (**Vina**).³ Again it is seen that according to Bharata, **Gandharva sangita** is caused (i.e., created by voice, the lute (**vina**) and the flute (**vamsi**). That is because obviously these three are capable of producing the **svaras** (tones). Thus the rationale of the **avanaddha** and **tala kutapas** being formed separately lies in their being a-tonal and tonal instruments. So, the **avanaddhas** and the **ghanas** are recognised to be atonal in nature as well as function. This explains why **ghana** was assigned the function of manifesting **tala**. However, it yet remains to be seen why **avanaddha** was not considered suitable for this purpose although later on, it was accepted and actually it completely extinguished **ghana**.

Tala was to measure time of a musical rendering. What was the concept of time by our ancients? The constituent factors of **tala** are **kal ā**, **p ā ta** and **lay ā**. Of these, the first two represent action. Time is considered to be eternal by itself and therefore boundless. Therefore, the fundamental question arises whether time can be measured and if so how.

1. *Kutapa signifies a group of allied (instrument and may be roughly equated with what is now called an ensemble.*

2. *of. N.S. (G.O.S.) 28.3*

3. *N.S. (G.O.S.) 28.12*

Time is differently conceived in the different schools of Indian philosophy. But it will be interesting to study the concept of time in a general way. We are concerned with measurable time. But time is considered as having two aspects, eternal and transitory. According to the Vaisesika system of philosophy, time is an eternal substance⁴ and the basis of all experience. We do not know what time is in itself but our experience is east in its fold.

Time in itself is one but it appears to be many with reference to the changes or events that take place in it.¹ Time itself is not measurable; what is measurable is the action or the event that taken place in it, the limitations thereof being subsequently attributed to time. This time is transitory and relative, it always has a point of reference or a standard of measurement with reference to which it becomes perceptible. The time is chronological and consists in the notion of sequence in which certain events are prior and other posterior. But the time that is eternal is yet the substratum of this partial time. Abhinavagupta calls it the *Kala Khanda* i.e., a portion of time. He elucidates Bharata's definition of *tala* as follows:-

"The *tala* that arises from the instrument spoken of as *ghana* by the application of audible actions such as *samya* and silent actions such as *avapa*, which embodies action within a portion of time and is essentially a substance, is the means of measuring (literally limiting) the extent of the act of singing."²

In other words, *tala* is conceived by him to be the means, fashioned out of the *sasabda* and *nisabda kriyas*, for measuring the extent of the act of singing, as it is extended in time. If extension be understood as the quality or property of space, then *tala* is essentially the means of determining and regulating the act of singing in the time-space axis. Although Abhinavagupta has referred to only two aspects of *tala* namely movement (*kriya*) and devisive measurement (*paricchitti*), there are two other aspects which are equally important namely patterns of the time-division and their cyclic recurrence.

Again he says that time cannot be perceived without action.³ rather it is time that is the cause of every limitation.⁴ Time is, as already pointed out, the formal cause of all change, its material cause being the limited objects or particular actions. So action or *kriya* is a means of determining the divisions of time in its transitory aspect and time on the other hand, is the substratum in which the actions take place in its eternal aspect.

Since *tala* is the means of measuring the act of singing in time-space, Sarngadeva identifies *tala* with *kāla* (time). He says,

कालो लघ्वादिमितया कियया संमिती मितसू ।
गीता दैवि दैघत्तालः, स च द्विधा बुधै स्मृतः ॥३॥

"Providing through action (*kriya*) measured by units such as *laghu* etc., the measurement of song (*gita*) etc., time is *kāla*."

4. of. V.S. II 2.7

1. of. *Tarkasangraha* 15.

2. See *Abhinavabharati* on N.S. (G.O.S.) 31.1, p.151

3. न कालः कीयाण्यातरैकः अपि तु सवैणा परिचदहैतुः काल *Abh. Bha. on H.S. (G.O.S.) 31.1, p. 151*

4. *Ibid*

Although Sarngadeva is a close of follower of Bharata, a critical study of the definitions of **tala** given by the two authors points to a development on the very concept of **tala**. The difference however cannot be termed categorical, but nevertheless it provide sample proof of the development of the idea in the same direction.

To Bharata, **tala** was inextricably integrated with the medium of its expression, i.e., **ghana** which shows that his understanding was concrete; but to Sarngadeva, **tala** is nothing but time which signifies an abstract concept based on the distinction that was made between the subject and the medium of expression. This development in conceptual terms was probably a necessary forerunner to the change over from the **ghana** to the **avanaddha** as a medium of expression for **tala** in Indian music. According to Bharata, it is the **ghana** (**vādyā**) alongwith **kalā**, **pāta** and **laya** that provides the standard of measurement in time.¹ Abhinavagupta marks a development in his concept of **tala** when he says that **tala** arising from **ghana** with the audible and the inaudible actions (**śasabda** and **śasabda kriyas**) as well as tempo, is the means of determining the extent of the act of singing as delimited in terms of time-space². And Sarngadeva says that time as delimited by the sections measured by **laghu** etc., and thereby setting the measurement of song-dance etc., is **tala**³.

Abhinavagupta represents one stage of development and Sarngadeva another. With Bharata, **tala** arises out of **ghana**; with Abhinavagupta, it is not time that is measured by **tala**, it is the extent (i.e., the time-space) of the act of singing that is sought to be measured by **tala**, and for Sarngadeva, time as qualified by the measured expanse of the act of singing, is **tala**. The whole process achieves the isolation of **tala** from the medium of expression. Abhinavagupta develops the concept that without dissociating it from **ghana** whereas Sarngadeva develops his concept by associating **laghu** and **guru** etc., which are the time-units measured through **kalā** and **pāta** in order to manifest **tala**, dispensing with any explicit reference to **ghana**. So we see that **tala** was the means of measuring time, or the act of singing. But to determine the forms of **tala** it was necessary to understand the pattern of action. But change implies alternation of relative action and rest, the frequency of which produces tempo (**laya**). So, in fact, we can see how the three factors - time, action and the rate of change (caused by relative action and pause) go to a constitute **tala**.

To go into further intricacies of the structure of the **tala** system would make this paper too lengthy.

Tala upto the 13th Cent. A.D., had certain components like **laghu**, **guru** and **pluta** but all these were denoted by the generic term **kalā**. **Kalā** literally signifies a phase or thereby a part of a whole, and thus, it has a function of a unit in the cycle of **tala**. But, this unit of time has no absolute value, it varies according to the **Marga** or the particular span of **tala** to which it is related. The fact it has no absolute value is very important as this flexibility was utilised in evolving the structure of **Desi-talas** to great advantage. But all the same it does not mean that it has no fixed value.

1. Cf. N.S. (G.O.S.) 31.1

2. Cf. Abh. Bha. on N.S. (G.O.S.) 31.1, p. 151

3. Cf. S.R. 5.2

4. See *Sangitachudamani* 51-54 and *Manasollasa* 4.16.851.

In metrical measure a *kalā* is equal to a *matra* which is equivalent to the time taken for pronouncing a short vowel or the time of *nimesa* (i.e., the winking of an eye). But a *kalā* was also equal to five *laghus* in the context of *tala*. Actually in the *Marga-talas*, *kalā* consisted of two *laghus* or a *guru*.

The early *talas* were known as *Marga-talas* which are mentioned in the *Natyasastra* namely *Cancatputa*, *Cacaputa* or *satpitautrak*, *udghatta* and *sampakvestak*. There were three *margas* or ways for expressing the above *talas*. They were *citra*, *vartika* and *daksina*. Some works like *Sangita-cudamani* and *Manasollasa* mentioned six and four *margas* respectively.⁴ *Marga* essentially implies a device for providing different standards of measuring the same *tala* structure. Thus there were *ekakalā*, *dvikalā* and *catuskalā*. There were, in all eight movements within the cyclic format of a *tala* including both *śasabda* and *niśabda kriya*. Each of the above two had, four variations. The former consisted of *Dhruva*, *samya*, *tala* and *sannipata* and the latter comprised *avapa*, *niskrama*, *viksepa* and *pravesa*.

But in the actual marking of these *talas*, there was a basic difference in the concept of *laya*. It is therefore necessary to understand the concept of *laya*. Bharata clearly says that *laya* is caused by the time-space taken by the *kalas*.¹ The time interval between one audible *kala* and another is called *visranti* (rest). Sarngadeva defines *laya* as "rest immediately following action."² Thus tempo or *laya* is nothing but the interval of time between a series of actions (*kriyas*). Here is a fundamental difference between the old and the modern concept of *laya*. The former considers rest as the substance of *laya* whereas the latter considers action as its substance. Now-a-days increase of *laya* means the increase of the speed of action and consequently the decrease of the period of rest whereas in the earlier concept, increase of *laya* meant increase of the rest period and the decrease of the rate of action.

What lends *tala* a distinct identity with reference to rhythm is what Dattila calls *parivarta* and Sarngadeva calls it *parivartana* which he defines as the repetition of a *padabhaga* (i.e., a section) or the whole of *tala*.³ It is this repetition or recurrence in a cyclic order that distinguishes *tala* from a simple rhythm. The old concept of *parivarta* or *parivartana*, it seems, has come down to us in the form of *avartana* in modern practise. Besides *parivartana*, *yati* and *graha*, are two other aspects of *laya*. *Yati* is defined by Sarngadeva as "the regulation effecting *laya*."⁴ There were three varieties of *yati* namely *sama*, *srotogata* and *gopuccha*.⁵ Then there was *graha* which denoted the relationship between the commencement of the *tala* patterns and that of the rendering. There were three types of *graha* - *sama*, *atita* and *anagata*.

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1. N.S. (G.O.S.) 31.5
 2. S.R. 5.44; fill up.
 3. S.R. 5.52
 4. S.R. 5.46-47
 5. S.R. 5.47-50
 6. S.R. 5.51
-

From here, Hindustani and Karnatak music deviate. **sama** in Hindustani music is the beginning or the first beat of the **tala** where the singer, the stringed and the percussion accompanists converge and meet. It could be an aesthetic confluence of all the three or a pandemonious clash. But the **sama** is the most important aspect of the **tala** rendering. In Karnatak Music, **Sama** means simple rendering of a composition on the beat or **matra**. But they follow the old system of **graha**, i.e., "the commencement of **tala** coincides in time with that of melody."⁶ So it will be clear that Karnatak Music is still adhering to the old system of **graha**, **laghu**, **guru** and **pluta**.

Another noteworthy point was the use of **tala-dhara** or a special person to mark the different **talas**. The idea of having a **taladhara** or a separate individual to mark the **talas** was probably to help the singer concentrate on his music and not get distracted by the complicated structure of the **talas**.

Around the 13th Cent. A.D., this **taladhara** concept brought about a revolutionary change in Hindustani music and completely diverged from Karnatak music. Instead of **taladhara** marking the different **talas** with his hand with the help of **Sasabda** and **nisabda kriyas**, a new system of **talas** was created. here the **tala** was given a specific pattern through mnemonic syllables (**bols**) which became known later by the term **theka**. So the **taladhara** became the percussionist himself. He played a set **theka** which indicated clearly the specific **tala**. This not only eliminated the **taladhara** in Hindustani music but aesthetically enriched it considerably because (a) it gave full scope and freedom to the singer to improvise, (b) the range of slow and fast tempo widened because the **laya** was maintained by a separate individual. If the singer has to keep the **tala**, then it would inevitably inhibit the range of **laya** as it still happens in Karnatak music where the **vilambit k ā la** is almost that of the **madhya k ā la** of Hindustani music and the **druta k ā la** again close to the **madhya k ā la** of Hindustani music. Hindustani music by creating **thekas** for different **talas** fostered the emotional and aesthetic aspects of music. Whereas Karnatak music became more and more intellectually and rhythmically oriented.

The Karnatak **tala** system consists of seven basic **talas** namely **Dhruva**, **Matya**, **Ata**, **Triputa**, **Rupaka**, **Jhampa** and **Eka tala**, and the five **j ā tis** namely **tisra**, **Catusra**, **Khanda**, **Misra** and **Sankirna**. Combining the two, there were thirtyfive **talas**. Further expansion produced $35 \times 3 = 175$ **talas**. Each **tala** has a name. In Karnatak Music, the **j ā ti** of a particular **tala**, is determined by the value of its **laghu**. If the **laghu** consists of three **matras**, then it is **tisra jati**, if it is seven, then it is **misra jati** and so on.

Whereas in Hindustani Music, the **j ā ti** is determined by the value of each **matra** of the **tala**. **Ek tala** could be of 12 **matras**, of 24 **matras**, of 36 **matras**, 48, 60 and even 72 **matras**. Hindustani music does not use **laghu**, **drutam** and **anudrutam**. The **drutam** consists of two **matras** and indicated by a clap and a wave and the **anudrutam** is one of **matra** indicated by a clap. Karnatak music still uses these terms and follows this system.

The picture today is that Hindustani music is richer melodically and Karnatak music rhythmically. Beauty of tone and the subtle nuances of the **swaras** are possible in Hindustani music due to precision of intonation whereas in Karnatak Music, the precision is in the rhythmic calculations.

But nowhere in the world is there any rhythmic system resembling the tala of Indian music. Especially in Hindustani music, because of the set pattern of a tala with its t̄ā li and kh̄ā li, like the aroha-avaroha of a raga, its elaboration is also done like raga elaboration with kayada, gat, paran, cakradar, rela, bant etc., so that an imaginative and proficient tabla player can delineate on a single tala for an hour. This is not so in Karnatak Music where the percussion instrument is exclusively an accompanying one.

Having given a short dissertation on tala, I shall dwell briefly on the three instruments namely Tabla, Pakhawaj and Naquara which would be presented by accredited masters from Delhi and Bombay. They would be shedding more light on these instruments.

THE PAKHAWAJ

The pakhawaj resembles the mrudanga of Karnatak music but for some subtle differences in construction and technique of playing. The left side is more or less the same in both the instruments but the right side is quite different in the size and shape comprising it. The quality of the leather as well as the tension of the surface are quite different. The cylindrical blocks of wood inserted between the braces and the wall of the pakhawaj are bigger than those of the mrdangam.

The main difference in the style of playing between the pakhawaj and the mrdangam is that whereas the left side of the pakhawaj is played with the open left hand, the left side of the mrdangam is played in almost the same way as the bayan of the tabla with the help of pressing the side with the palm and using the fingers for accenting and simulating gamakas and svaras.

Although the pakhawaj is a highly developed percussion instrument of the North, it has almost been displaced by the tabla. One main reason for this is the increasing paucity of dhrupad-dhamar singers on the one hand and the Rudra veena players on the other. Pakhawaj was also used as an accompaniment by Surbahar and Surshringar players. Today there are hardly any distinguished players of the two instruments. The pakhawaj has its own mnemonic syllables (bols) distinct and different from the tabla.

The etymology of the word pakhawaj has two versions. Some scholars believe that the word is a corruption of the Sansrit word 'paksha-vadya' as it is played on both the sides. The other version is that it was derived from the 'Awaj' a kind of drum used during the Moghal period and described as 'two kettle drums joined together at the reverse ends, their heads covered with skin and braced with thongs'. The Awaj is referred to in the 'AIN-E-AKBARI' by Abul Fazl. The pakhawaj was the main accompanying rhythmic instrument during the Moghul period for both vocal (dhrupad, dhamar, sadra etc.) and instrumental (veena, rabab etc.) and also dance.

THE TABLA

The tabla is the most widely used percussion instrument in the North. Although the pakhawaj is much older than the tabla, the latter after the advent of the khayal and the fading away of the dhrupad superceded the pakhawaj in both classical vocal and

instrumental music. The introduction of the tabla also ushered in a momentous, revolutionary change in Hindustani classical music. The necessity of the tabla player to adapt the time measure of the tala chosen by the main singer or player was given up and the main artist took cognisance of the steady, continuous beats of the tabla called the *theka* which gave the explicit version of the tala cycle the artist chose for his performance.

The general misconception attributing the origin of the tabla to Amir Khusrau, a well-known Persian poet in the court of Allaudin Khilji in the 13th Cent., is deplorable and historically untenable. In sculptures of the 5th Cent., A.D., instruments resembling the tabla are found. Amir Khusrau was a versatile genius; he appreciated the tabla so much that he even composed a few talas like 'Mian-ka-chakka' Savari etc., but had nothing to do with its origin. He was born in Etah district in a town known as Patyali in the present Uttar Pradesh perhaps near Kanpur and was an ardent Indian nationalist. His published works are seven in number and in one of them 'NUM SIPIHIR' he extols Indian classical music as peerless, refers to it as Brahmin music and scoffs at the large number of musicians who were in Delhi and had come from Turkey, Persia, Arabia, Egypt for being unable to sing or play a single Indian melody to prove how difficult and unique the music was. But nowhere has he referred to the tabla. The name tabla may have been derived from the Arabian word 'tabl' which means a flat surface from which the English word table is derived. I am not expatiating further on this as learned scholars would be speaking on this instrument.

THE NAQUARA

The Naquara is one of the oldest percussion instruments in existence. This instrument is known as Naqqarah in the Middle East. A few ancient varieties of this instrument called *bheri* and *dhundubi* occupied a place of great honour and were used in battle. These instruments are mentioned in our Epics. These battle drums were regarded with great veneration and the capture of these drums meant the defeat of the army.

The *naquara* is a big conical drum covered with hide. Most temples and religious institutions in India own one. It is used during religious worship and heads the processions of temple deities. The shell is of rivetted copper, brass or sheet iron. The diameter of the head is between two and a half to three feet. In some places in Northern India there are *naquaras* with a diameter of as much as five feet. The skin is strained upon hoops of metal and stretched by means of leather thongs or thick ropes passing round the underside of the shell. It is beaten with sticks and the sound produced is deep and formidable.

A set of *naquaras* usually accompanies Shehnai players in North India. One drum is smaller than the other and they are played with sticks. The *naquara* was one of the constituents of the famous *naubat*, the royal ensemble of the Moghul court. The *Naquarkhana* of Emperor Akbar comprised twenty pairs of *naquaras* besides other instruments.*

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TABLA, PAKHAWAJ AND NAQARA

B.M. SUNDARAM

Tabla, Pakhwaj and Naqara are the Percussive instruments, taken up by our Percussive Arts Centre, for an analytical study in the current session.

Tabla is the percussion widely used in Hindustani Music and dance. Besides being an accompaniment, it also serves to present solo recitals. It may be said that the Tabla is the mridanga in two pieces. It is considered by many to be an innovation of Ameer Khusro of Alluddin Khilji's court (13th century). Yet, it is surprising to note that this percussive instrument does not seem to have been used in the Moghul courts, or at least not mentioned in any works, written during the regime of the Moghuls. 'Aini Akbari' and 'Akbar Nama', the works that came up during the rule of Akbar or some other works of Jahangeer's and Shahjahan's 'Madirat-e-Shābe' (1797 A.D.) has no place for this instrument or its player. It may, perhaps, be due to the fact that it was deemed to be lacking the gravity required to accompany the type of music prevailing in those times. Had it been derived from the mridanga or Pakhwaj, it would certainly, have got mentioned in the medieval texts. For the first time, we find the name of Miyan Dhari as a Tabla player in 'maadnūl musiqui' of Hazrat Mohammad Karam Imam, written in 1854. Names of some other prominent Tabaljis like Ghooran Khaji, Sallari, Mammu Dhari, Najju Deredar, Vilayat Ali-Dhari and Abeed Ali came to follow. Many scholars, on the basis of these, aver that till the end of the 18th century, the birth of Tabla didn't take place. At the same time, many hereditary Tabla players contend that the Tabla originated in their families, even long before the birth of Islam. They also say that a kind of drum called 'Tabl' was popular in Arabia, which the Muslims must have brought to India. Pandit Nikhil Ghosh, in the course of his lecture in our Percussive Arts Centre, some years ago, stated that 'though there are different opinions as to the origin of the Tabla, the earliest name as tabla from authentic sources is that of Ustad Siddhar Khan, who lived sometime in the 13th century in Delhi.' At the same time Panditji has admitted that Tabla, as a concert instrument, came into prominence only in the 18th century.

The Tabla player does not have to adapt his time measure to the main artiste. On the other hand, the main artiste has to be cognizant with the version of the rhythmic cycle executed on the Tabla. The total number of syllables used on the Tabla is 22. 14 on the right one of the pair called Dayan and 8 on the left one, the Bayan. The playing has four important sections:

1. Pehkar - Introduction;
2. Qaida, which means 'ruling';
3. Reka - flow or gushing, which is usually played in high speed, and
4. Tihayi, the finale like our 'Mohara'. It may not be out of place, if I say a word about the term, 'Mohara'. Some prominent Mrudangists, in their lec-dems, have been telling that it is only 'MORA' and not 'MOHARA', perhaps due to their ignorance in the literature. Almost all literature both in Sanskrit and Tamil use only 'Mohara'. Suffice it to give one reference. Pundareeka Vithala's 'Narthana Nirnaya' says, "Pāthavarna Suraichitriya t ā layaty ā di - Sobhita: Mo'h ā d ranjayati srotruchittam tan mohara: Smṛta : || (II:102) "Since it is infatuatingly colourful and appealing to the listener's mind, it is named 'Mohara' (Trans : Dr. R. Satyanarayana).

Five prominent 'Gharanas' or schools are identified with the Tabla. They are: Delhi, Ajrala, Lucknow, Ferrukhabad and Punjab. Sometimes, Banaras is also included in his list of Gharanas. Though the basics are one and the same in all these schools, they differ in the styles of execution. Tabla was quite commonly present in Karnataka even in Carnatic Music concerts, until the Mrudangam took over. This instrument played a dominant part in the South Indian dramas of yesteryears. Even now, the Tabla has its place in film orchestras.

Pakhawaj is almost similar to the South Indian mrudangam, except for slight difference in construction, playing technique, the syllabus and the sound. 'Mrudanga Purana', an old work, gives about the general types of percussive instruments.

Murajanam Prabhedā : Syu : Arkyalingyo'rdhvakā : traya :

They are of these kinds: Ankya - that which is kept on the lap and played; Alingya - embraced and Oordhvaka - the parchments played kept upward. The late, K.V. Ramachandran, a scholar and editor of the magazine, 'Silpasri', wrote, many years back that these varieties were mistaken by the lexicons to refer to drums. He added a somewhat controversial statement. "May I hazard the view that it was the lute of the Sarode type installed on the thigh and held upwards and the scroll reaching upto the shoulder region?" But, the classification given in old treatises very clearly indicate only the percussions. As such, we may classify the Tabla as a Oordhvaka type, while the Pakhawaj an ankya. The left side of the Pakhawaj is more or less the same as we find in the Mrudanga, but the paste applied there is a permanent fixture in the Pakhawaj like the Dholak and Dholki. On the other hand, a paste made of flour (in the former days of ash) is affixed in the centre of the Toppi in the Mrudangam, whenever played and removed later. In the present days, some mrudanga artistes have the toppi exactly like that of the Pakhawaj.

The right side, which we call the 'Valantalai', though designed on the same principle of mrudanga, is quite different in the distribution of the prepared parts. The quality of the hide as well as tensioning the parchments also differ. Bharata tells us, through his 'Natya Sastra' that Mrudanga was the innovation of Swati. For a very long time, the term 'Mrudang' was used in the North and only in the medieval times, it acquired the name, 'Pakhawaj.'

The term 'Pakhwaj' is fit to be split into 'Pakwa' and 'Avaj'. 'Pakwa' means 'ripe' or 'fitting'; 'Avaj' is nothing but Avaja, meaning a percussion. Some scholars say that this too was originally 'Avanj', which later became 'Avaj'. In the Tamil language 'A' denotes the cow and 'Vanji' - the skin. Since the cow's skin was used in the percussion, it gained the name 'Avanji', spoken of at many places in the Sangam literature. Rudra is said to be the god for 'Avanji'. Some writers of the North India say, but unconvincingly, that the name 'Pakhwaj' is the corrupt version of 'Pushkara'.

The Pakhawaj is played with the use of 26 syllabus, out of which 13 are primary and the rest being complimentary.

Ta, ta, dee, thun, nā, dhā, da, ddhe', deega, khirra, jhem and ma are the primary syllables, while the complimentary ones are:-

Rān - ka - ga - na - dhu - dheer - rān - theyi - dān - dheer - kee - tee and tharra.

Thus it is given in works that describe the Pakhawaj playing. The syllables 'dee' is found given twice. 'Ga' is found both as primary and complimentary!

The playing technique comprises of five sections:-

Padar, Bol, Paran, Tukda and Mohara. Tukda is usually based on 4, 6, 8, 12 or 16 matras. E.g. the Tukda for matras will be like, dhaga, dee-ganad ā , Kitataka - dhadhigana. Mohara is played thrice the syllabic phrases like gadigana ta-gadigana ta-gadigana ta.

Although the Pakhwaj is a highly developed percussion, it has more or less been superceded in popularity by the Tabla. The use of Pakhwaj is restricted to serve only classical types of compositions like Dhrupad, Dhamar and Dadra. It is also used for accompanying instruments like the Been, Surbehar etc., when they are played in the traditional style. Pakhwaj was very popular during the Moghul times, as an accompaniment to vocal, instrumental and also to dancing.

Sadiq Sitab Khan's 'Sarmaya Ishrat' mentions the names of some Pakhawaj players as 'mrudang' artistes. Abid Ali of Nawab Wajid Ali Shah's times has written that one Khudaising Pakhawaji was his guru. It is quite surprising, similarly as in the case of Tabla, not many names of the lady artistes have come down to us. The same was with the mrudanga too, at least until some decades ago. In the recent times, we hear about some women, who play the Tabla or Mrudanga, as against the very meagre number of lady Pakhawaj artistes. Bai Kesarbai Kerkar once said that she, during one of her concert trips, was much surprised to meet a lady Pakhwaji, in the Zenana of the Nizam of Hyderabad, teaching the art to someone there. The artiste was the daughter of Mrudangacharya, Nana Pande. Gieta Bahan, daughter of Ambadas Sarabhai of Ahmedabad and the disciple of Govind Rao Burhanpurkar, Kumari Chitrangana, Kumari Poorva Naresh and such others are some talented Pakhwajis.

The reason why ladies do not come forward to learn and practice any percussion art, in comparison to men, would be another interesting subject for study.

Naquara or more commonly pronounced as Nagara is another Percussive instrument of the Oordhavaka type. According to some, Bher, Dundubhi and Bhandavadya are the other names in Sanskrit for the Naquara. Capt. C.R. Day says, "Nagara is sometimes called Bheri; in the Ramayana and Mahabharata, this is called 'Dundubhi'. It is a large Kettledrum, hemispherical in shape, covered with hide and mostly used in temples. The shell is made of copper, brass or iron sheet. The diameter of the parchment is about 2½ to 3 feet. Bheri is said to have been made out of 'Kurava' tree. During the wartime, it was placed on the back of an elephant and played. The Tamil Sangam literature frequently speaks about this as Jaya Murasu or Porpparai (war drum). Murasu in Tamil and Muraja in Sanskrit, generally denote the same percussion. Muram has the honour of being one among the eight auspicious things (Ashta Mangala).

Adiyarkku Nallar, the commentator of 'Silappadhikaran' says:

"Chamarai Deepam tamaniyapporkkuḍam

Kā mar Kayaliṇai mudalattimaruvu

Kaṇṇaḍi totti Kadalikai Ven Muraṣam

Enṇiya Mangalangalettu" (Arangetru Kadai 3:27)

Dharma of the Pandavas is said to have had his flag with the emblem of Muraja. Mantras from the Atharva Veda, consecrated to the war drum, indicate how it can render victorious, the armies which it heralds. The very capture of the Nagara meant the defeat of the army. 'Perunkadai', a Sangam literature mentions this instrument

"Nagari muzhakkinum...", another Tamil work, of a later period, 'Kondal Vidu Toodu' has a verse in which the line 'Nagar ā muzhanga' is found. Later, in the Tamil works of the early 18th century, the name 'Nagar ā' or 'Nag ā r' is again mentioned. As a temple instrument, it is placed on a two wheeled carriage, to be drawn by a temple servant, following the deity's procession. The player sits on the carriage and beats the Nagara with two curved sticks, particularly at every junction of the streets. The temples at Tiruvar and Tiruchendur, for instance, have Nagara Mandapams. Tirumalai Nayaka, ruler of Madurai, had the strict custom of taking lunch, only after the mid-day offering of food to Nachiyar (Andal) in the Srivilliputtur temple. To know about the finish of this ritual, the ruler built several Nagara mandapas from Srivilliputtur to Madurai, so that, he could get the sound from the Nagars, in relay. Similarly, in palaces, the Naquara had an important place in the Naubat. 'Naubat' is a band of nine players; they sit in the balconies or elevations over the arched gateyards, cities, mausoleums and so on and perform. The place where Naubat is performed is called the Naubatkhana. The Naubat khana of Emperor Akbar, consisted of 20 pairs of Naqaras, according to historians. Such Naubatkhanas were not only in the Northern India. Almost all royal households in Tamil Nadu, Karnataka and Kerala had it.

The terms 'Nagara' or 'Naubat' or both find place in some Vachanas of Sivasaranas. For instance, Koodalooru Basavalingappa says:

'Dhimi Dhimi Dhimi embo nag ā ri naubattu b ā jigalu'

(ಧಿಮಿ ಧಿಮಿ ಧಿಮಿ ಎಂಬೋ ನಗಾರಿ ನೌಬತ್ತು ಬಾಜಿಗಳು)

At another place of his Vachanas, we find:

'N ā da Nag ā ri naubattugalu Ooduva tammati San ā yigalu'

(ನಾಡ ನಗಾರಿ ನೌಬತ್ತುಗಳು ಊದುವ ತಮ್ಮಟ ಸನಾಯಿಗಳು)

Similarly, Harapanahalli Bhumavva says:

1. 'Bhēri b ā risutiruvude Naubattu'

(ಭೇರಿ ಬಾರಿಸುತ್ತಿರುವುದೇ ನೌಬತ್ತು)

2. Bheri badidave tutt ā ri hididave,

bheri tutt ā ri nag ā rin ā gawaragalinda..." (Muyyada Hadu)

(ಭೇರಿ ಬಡಿದವೆ ತುತ್ತಾರಿ ಹಿಡಿದವೆ)

ಭೇರಿ ತುತ್ತಾರಿ ನಗಾರಿ ನಾಗಸ್ವರಗಳಿಂದ

Srinatha (15th Century A.D.), the great poet of Andhra, has mentioned the Nagara in his 'Palnaati Veera Charitra', "Sankha aamuhambu sannayi jollu Nagaraalu tappetal nayamaina dollu".

A type of Nagara called 'Karadi Samela' is said to be used in some lignayat temples in the Southern provinces, according to capt. C.R. Day. Even today there is a street in Madurai called 'Naubatkhana Street'. Nagaras were regularly sounded there, also to announce the time. We, wonderfully enough, come across the name of a lady Nagara Player, Shaheedabi, in some old records preserved in Madurai. In the present days, we find the Nagara, as a pair of small kettledrums, handled exterously by very talented players, who have become a rare stock. It is a very good percussive instrument, but due to change of times, its use turned towards the decline. Only in South Indian temples, we find it either rarely used or kept as an antique.

NAQQARA - NAGAARA

B.V.K. Sastry

In this Fourth Tālā vadya Seminar of the Percussive Art Centre Bangalore, the two scholars who spoke earlier repeatedly emphasised the word NAGAARA. But the instrument that has been taken up for study is not Nagaara but Naqqara or Nakkara which is different though belonging to the class of Drums or Taala Vaadyaas. Naqqara cannot be confused with Nagara or Nagari the large vessel shaped drum generally carried on the back of Elephants in the Royal or Religious processions of Mathas. Their function is ceremonial. Besides being played during such processions with a pair of sticks and producing a booming sound they are also a part of Naubat a musical instrumental ensemble that were being played at prescribed hours in the Palaces or Religious Mathas.

But Naqqara is a pair of bowl shaped drums larger in size than Coconut halves. One of them small and the other a larger one are played with two sticks. And it is amazing how an expert performer is able to generate such speedy rolls of sound. Because it is a ceremonial instrument. Naqqara has no presence on a concert stage. In addition, it is confined to areas in Uttar Pradesh and round about Delhi, Naqqara is not familiar in other parts of the country.

Naqqara has an interesting past. It seems to have seen its hey days during the Mughal period. In the description of the Emperors Naqqarakhanah, in the Ain-I-Akbari, Abul Fazal provides a list of instruments comprising the ensemble. Starting with the drum Kwwargah also known as Damdamah (18 pairs), he mentions next Naqqarah (20 pairs); Dahul (4); Karna of Gold, Silver or Brass (not less than four pairs); Surna (9 pairs); Nafir; Sing (2 pairs); Sanj-Cymbals (3 pairs). After mentioning the order in which these instruments are played the time being indicated by Nafirs, the Naqaarahs start when all instruments raise the auspicious strain. "His Majesty" avers Abul Fazal "has such knowledge of the science of music as trained musicians do not possess; and he is likewise an excellent hand in performing especially on the Naqqarah". This means Emperor Akbar was an excellent player of Naqqarah and the Instrument had the Royal blessing.

Now another interesting reference to Naqqarah is found in the work "Maadanul Moosiqui" written by Hakim Mohammad Karam Imam in 1856. He was a courtier of Nawab Wajid Ali Shah of Lucknow. "In Nakara playing Marsal is a difficult task. Marsal is that in which one plays 'Sidhi' gat while other recitals bols and paran from the madhya, drut, doon etc. First among them is Qayam Khan of Asyoon, Ghuran Khan of Unnao and Subhan Khan of Benares who is employed by the Raja Saheb of Benares. The Nakarchis were masters of Marsal. Raja Raghunath Rao, Ponga Bahadur of Jhansi, has achieved great success in this art. Among the above mentioned artists Ghuran Khan is living now. Makadoom Paksh of Lucknow are Jhabbu of Unnao, both residing in Lucknow are well known exponent in this country". And **Ashfaq Khan** who is performing this evening belongs to this distinguished but fast dwindling class of Naqqara artistes and his performance is a real treat in respect of delightful sound patterns, breath taking speed and above all crispiness of the Rhythm, which have been the hall marks of this Naqqara art.

PAPER PRESENTED

By L.D. Dixit

OBSERVATIONS:

I observed that the whole team of Percussive Arts Centre is fully devoted for up-keep of Indian Percussive Arts with disciplined zeal, positive spirit, modesty and creative mind.

In India and for India, this Centre is really unique to balance cognisance and honour to percussion artists also. To the best of my knowledge, Percussive Arts Centre, Bangalore is the only institution to think and work in support of percussive arts and percussionists of Indian music - Karnatak and North Indian Music. Other government and non-government institutions mostly ignore percussive arts and give stress on vocal music, dance and melody instruments, only.

I, being a percussionist - solo Tabla player and accompanist of North Indian Music, really felt very happy to notice high level motive and spirit of percussive arts centre.

SUGGESTIONS:

1. Government and non-government institutions should be motivated and associated in support of balanced justice with Indian Music and musicians.
2. At least one seminar and concert should be organised at different places of India in a month, covering East, West, South and North Zones of the country. Later, the same may be organised abroad also.
3. More people from common masses should be associated to create awareness.
4. Duet performances of Mridanga (Pakhawai) and Tabla should be organised more and more to prove one-ness of Indian Percussive Arts.

"Laya" is a natural and essential force for survival of whole universe including earth. All planets move within their regular time - cycle of laya and up-setting of even one - two seconds may bring "Pralaya" for any planet of the universe. Our vedas and other classic literature proved this universal truth in detail.

"Manava", the best creation of nature, realised this fact during primitive era (Aadim yuga) of life-cycle. Living in caves and eating flesh of animals was life style with developing capacity of brain.

Once before thousands of years, Adi-Manavaas and women had their food and threw the skin of animal on earth ditch, a natural earth vacuum. Next day, the animal skin became dry and hard remaining on the earth/soil ditch. Adi-Manavaas and women again had their food and the same place. By chance, one manava threw leg-bone of the animal on that skin covered earth ditch and heard a new sound "DHUM". He felt very happy and others also started throwing animal bones on that skin covered earth ditch and enjoyed the sound "Dhum" repeatedly.

This historic sound "Dhum" is the base of all percussive arts. The fastly developing human mind created earthen Vacuum/pot, covered within animal skin on one side and

started striking with full palm giving equal intervals of time. After few hundred years, two side earth vacuum/pot was created and covered with skin of animal. The mankind devoted hundreds of years for improvisations and innovations and prepared so many percussive instruments using the wood also.

Primarily, these instruments were used for folk and tribal group dances with singing expression. The mankind was developing gradually and with improving mind and inventing ups and downs of regular sounds from nature. As a result, melody and music came into existence. After so many inventions and improvisations, melody and music were divided into two spheres-Folk Music and classical music. Relatively, percussive arts were also divided into two spheres - Folk percussive arts and classical percussive arts.

Indian classical music, having plenty of varieties, was mainly devotional praying almighty God. Dhruvapad Gayan as group singing, accompaniment on varieties of veena and Mridanga was very popular and common in all sectors of Indians. Our country - India was famous in the world as highly cultured "Golden Bird".

This fame attracted several countries to attack and capture India. Afghans and Moghals succeeded and ruled India for more than one thousand years. They hardly liked our classical music due to its very high level devotional concept and nature as they were very much found of "Shringaar Rasa". The Afghans and Moghal rulers were very keen and impulsive to change and use Indian music to please them and provide entertainment.

The emperors ordered musicians to invent changes in Indian classical music and they worked for about two hundred years for the same. One soofee saint, poet and musician Ameer Khusaro gave the final touch to changing inventions and introduced Khayal Gayakee, seh Taar (Sitar) and Talila in North India.

Tabla started becoming prominent and multi purpose percussion instrument in North India for accompaniment and Solo both. The heavy strokes of Mridanga, later named as Pakhawaj, were converted into softer strokes of the fingers on the Tabla and "Delhi Baaj" (Style) came into existence in the beginning. The emperors continued giving patronage to Tabla player for more innovations and one more baaj came up as "Ayrada Baaj".

Some musicians indirectly revolted against this change of discording mridanga. They decided to play mridanga strokes on the Tabla and two more Baaj were introduced - "Poorab Baaj" and "Panjab Baaj" by some Tabla - players.

At present all the four Baaj of Tabla - playing exist and being used for accompaniment and solo. But Delhi Baaj is becoming rare and only few Tabla players are capable to play original Delhi Baaj. After 1970, mixing styles of Tabla playing started becoming very popular and as a result every Baaj is losing its separate identity. This is happening due to over domination of commercialism and craze for stardom. In my opinion, change and mixing are justified if the separate traditions and identity are also preserved.

ON TRADITIONS OF TABLA-RIAZ IN BANARAS SCHOOL

By K. N. Bhowmick

Note: The present article consists of certain informations regarding the traditional modes of physical (or mental) exercises involved in the playing of Tabla in Banaras School. Riaz is a dialectical term conveying a mode of exercise in Tabla playing. In order to realise the wider sense of Tabla-Riaz, an attempt has been made to put forward the ideas conveyed by the traditional dialectical terms like Chilla, Gatta-Pujna, Gatta-Pakarna, Gatta-Tor, Ilm Sina-Basina, etc.

In the history of Hindustani Music, *Tabla* has always occupied an important position. In ancient India, *Pakhawaj* and *Tabla* were indispensable percussion instruments for accompanying vocalists, instrumentalists and dancers in a concert. In ancient Arabia, *Tabla* was a popular folk instrument [1] used by women musicians.

During the kingdom of Nawab Wajid Ali Shah of Awadh, *Tabla* used to be presented very frequently in the form of solo demonstration. In judging the merit of a *tabla* player, both his techniques of solo demonstration and his capacity for accompaniment were considered of equal importance. There happened to be many occasions when two *Tabla* players played in the form of a duet, and exchanged their ideas and disciplines for the development of *Tabla*. The title of *Khalifa* (खलीफा) was a cherished honour for a *tabla* player or a musician in general. In order to achieve this honour, a student had to devote himself to rigorous lessons of *Tabla* from the tender age of seven for a continuous span of twenty-three years. Subsequently, he was allowed by his teacher to present his *Tabla* to a gathering of recognised *Khalifas* and finally, the success of a student depended upon his perfect solo demonstration and satisfactory answers to various 'Critical Questions' raised by the audience. These critical questions are dialectically known as *FARMAIS* (फरमाइस), and the corresponding answers, in the form of rhythmic composition are known as *FARMAISI-GHISEN* (फरमाइस चिजे). It is remarkable to note that the compositions like *MANEDAR GAT*, *MANJHEDAR GAT*, *CHARBAG GAT*, *THIRAKIT-BARJIT GAT*, *THA-DHA BARJIT GAT*, *LALKILA* (Red fort) *PARAN*, *BIJALI-TADAK* (Thunderbolt) *PARAN*, *DAHEJ* (Dowry) *GAT*, *JANANI* (Female) *GAT*, etc are well known 'Farmaisi chisen' in *Tabla*.

It is historically known that Pandit Ram Sahaiji (2), a resident of village Gopalapur in Jaunpur, dedicated himself in laying the foundation of Banaras School of *Tabla* playing. Looking to the important chains of events of his life, we observe that he started learning *Tabla* with his uncle Sharada Sahaiji at the age of five, and continued to learn for a span of sixteen years. Pandit Sharada Sahaiji, being a famous dancer of that era, used to visit Lucknow frequently with his nephew Ram Sahai for various concerts. Once, Pandit Sharada Sahaiji was invited to present his dance at the court of Nawab Sujatudowla of Awadh, at the solemn occasion of *Sunnat* (a Mohammedan ritual) of prince Wajid Ali and this was a great opportunity for the boy Ram Sahai to introduce himself to Ustad Modu Khan Saheb, the founder of Lucknow School of *Tabla*. At this occasion, the former impressed the Ustad to accept him as one of the disciples. Realising the talent of the boy Ram Sahai, Ustad Modu Khan trained him with invaluable lessons of *Tabla* for a span of twelve years, and ultimately made him capable of presenting a historical *Tabla* solo to Nawab Wajid Ali Shah (during the period of sepoy mutiny) in the presence of numerous *Khalifas* of *Tabla*. This was a

memorable event, as Pandit Ram Sahaiji continued his Tabla playing for seven consecutive of DAHEJ GAT (five hundred in number), which were hence permanently recorded in the minds of the Khalifas. The Khalifas worshiped the wrists of Pandit Ram Sahaiji and accepted him as the best Khalifa of that era. The above mentioned worship of wrists is dialectically known as *GATTA* (wrist) *PUJAN* (worship), where *Gatta* (गट्टा) conveys the meaning of the wrist of an individual, which necessarily form the backbone of mechanical reproduction of Tabla words through the constituent *BANYA* (left hand) and *DAHINA* (right hand) parts of Tabla. It is relevant to mention the similar terms here like *GATTA-PAKARNA* (गट्टा पकड़ना) and *GATTA TOR* (गट्टा तौड़) which commonly figure in important dialogues between two Khalifas of Tabla. Precisely, the terms *Gatta-Pakarna* and *Gatta Tor* convey the respective meanings of Catching hold of wrist and Breaking of a wrist of an individual. A Tabla player (with all modesty) was found to admit the fault of committing an error in his mechanical reproduction whenever his wrist was caught hold by a recognised Khalifa at the moment of his faulty presentation, subsequently he was found to correct the error on the basis of the advice of the Khalifa. On the other hand, combination of the words of Tabla which might cause the wrists and other parts of hands to break (while reproducing those words mechanically on Tabla) is said to constitute a *Gatta-Tor* composition. In fact, of course, a true *Gatta Tor* is strictly impossible, just as it is very rare to find a true Leg-Break Bowling in the game of a cricket. Hence, a *Gatta-Tor* composition is intuitively understood to be constituted by a combination of words which cause an excessive amount of strain to different parts of the hands of a Tabla player. For instance, the following set of *Gatta-Tor* composition will illustrate this idea:

I Mohara of Pandit Gokulji in Tintal (Banaras School)

0 (Khali)

||| Ki ta tha ka Thi ra ki ta | tha k a Tha ki ta | Tha ki ta Ghi | na Dha thu ra ki ta |||
8 | | 9 | | 10 | | 11 | | 12

(Pahala)

Dha The te Ghe da | na ga Th et ki ta | dha a Thi ra ki ta | tha k a Dhi ra Dhi raki ta
12 | | 13 | | 14 | | 15 | | 16

II Rela Kaida in Tintal (Lucknow School)

+ (Sam)

||| Dha Thi ra | ki ta tha ka | De na tha ka | De na tha ka |||
0 | | 1 | | 2 | | 3 | | 4

2 (Pichla)

||| Tha ka De na | tha ka Tha ka | De na tha ka | De na tha ka |||
4 | | 5 | | 6 | | 7 | | 8

0 (Khali)

||| Tha Thi ra | ki ta tha ka | Te na tha ka | Te na tha ka |||
8 | | 9 | | 10 | | 11 | | 12

3 (Pahala)

||| Tha ka De na | tha ka Tha ka | De na tha Ka | De na tha ka |||
12 | | 13 | | 14 | | 15 | | 16

III Rela Kaida of Pandit Gokulji in Tintal (Banaras School)

+ (Sam) 2 (Pichla)
 ||| Dha | Gha da | Dhe na | Gi na ||| Tha ka | Dhe na | Na ga | tha k a |||
 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8
 0 (Khali) 3 (Pahala)
 ||| Tha | Gha da | Dhe na | Gi na | Tha ka | Dhe na | Na ga | Tha k a |
 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

Note:

- (i) Here, the symbol |____| stands for a constant for a constant timing beat, or division, for the words of the compositions, which themselves cover a complete round, or a part, of a cycle of sixteen beats. This particular sign is called a Matra (मत्रा) in Hindi. The signs +, 2, 0, 3, etc. stand for the terms SAM (first clap), DUSTRITALI or PICHLA (Second clap), KHALI, TISRITAL or PAHALA (third clap), VIBHAG (bar), etc. respectively, according to the BHATKHANDE SYSTEM (3) of music notations. Here the terms PICHLA and PAHALA are the dialectically used by Khalifas.
- (ii) It should be noted that every word in the compositions I, II, III begins with a capital letter and completes itself in lower case letters. No complete word in any one of these compositions contain more than one capital letter. Moreover, the words of the compositions I and II are subdivided according to the following Table:

TABLE - 1

<i>Nature of composition</i>	<i>Constituent words</i>	<i>Range of matras</i>	<i>Breaking Point</i>
MOHARA I	Thirakitathak	$(8\frac{1}{2}, 9\frac{1}{4})$	9th matra
	Ghina	$(10\frac{3}{4}, 11\frac{1}{4})$	11th matra
	Ghedanaga	$(12\frac{3}{4}, 13\frac{1}{2})$	13th matra
	Kitadha	$(13\frac{3}{4}, 14\frac{1}{2})$	14th matra
	Thirakitathaka	$(14\frac{1}{2}, 15\frac{1}{4})$	15th matra
RELA KAIDA II	Thirakitathaka	$(\frac{1}{2}, 2)$	First matra
	Denathaka	$(4\frac{1}{2}, 5\frac{1}{2})$	5th matra

By virtue of the Table I it is revealed that the complete words Thira kita thak, Ghina, Ghedanaga, Kitadha and Thirakitathaka, taken in order in Mohara I, begin at the ends of $8\frac{1}{2}$, $10\frac{3}{4}$, $12\frac{3}{4}$, $13\frac{3}{4}$ and $14\frac{1}{2}$ matras, and complete themselves at the ends of $9\frac{1}{4}$, $11\frac{1}{4}$, $13\frac{1}{2}$, $14\frac{1}{2}$ and $15\frac{1}{4}$ matras respectively. Moreover, these words break at the ends of the 9th, 11th, 13th, 14th and 15th matras respectively, with the exception that the words 'Thirakitathaka' in Mohara I breaks unevenly at the 9th matra. On the other hand, the words 'Thirakitathaka' and 'Denathaka' of Rela Kaida II begin at the ends of half a matra and four-and-a-half matras, and complete themselves at the ends of two and five and half matras respectively. Moreover, these words break at the first and fifth matras, with the exception that the word 'Thirakitathaka' breaks unevenly at the first matra.

Hence, it may be concluded that none of the words, as exhibited in Table I, completes itself entirely within any given matra of Tintal, and the words 'thirakitathaka' is unevenly broken within the intervals $(8\frac{1}{2}, 9\frac{1}{4})$, $(14\frac{1}{2}, 15\frac{1}{2})$ and $(1, 2)$.

Due to these reasons, the compositions I and II are hard to reproduce mechanically on Tabla, and thus they satisfy the qualities of Gatta-Tor compositions.

(iii) The word 'Denathaka', occurring in Rela Kaidas II and III, is hard to reproduce because of the natural jump of the ring finger of the right hand from the A-3 position (when the partial word 'Dena' is reproduced) to the A-4 position (when the partial word 'thaka' is reproduced) successively (see below), and the words in Rela Kaida III are difficult to reproduce on Tabla because of frequent change of position of the fingers, as indicated in the following Table:

TABLE II

Nos.	Words	Positions of Fingers
1	Dha and Naga	A-1
2	'Ghada' and 'gina'	A-2
3	'Dena' and 'Dhena'	A-3
4	'Thak' (Soft contact)	A-4
5	'Thak' (Hard contact)	A-5
6	'Tena'	A-6
7	'Tha'	A-7

The following explanations will serve to make clear the significance of the above seven finger positions (A-1 to A-7). It must be understood here that these positions represent the hand settings, in Banaras School of Tabla, necessary to reproduce the fundamental Tabla words listed in the Table-II. The reader is therefore strongly advised at this point to correctly position his own hands on Dahina and Banya exactly as described in the following explanation for each setting. This will result in a through understanding of various hand movements and the corresponding sounds, which will prove invaluable for the reader's comprehension and appreciation of the discussions which follow this section.

POSITION A-1 : 'Dha' and 'Naga'

(i) Right hand : (दाहिना)

- The ring finger and the little finger are both bent and placed together in contact with the Dahina such the position of the fingers from the tips of the first knuckle are at right angles to its surface.
- The tip of the ring finger is placed on the border between the circumference of the central black circle (SLAHI) and the circular strip (LAO) between the SLAHI and the border (KINAR) of the Dahina. The little finger is held directly adjacent to the ring finger and placed on the KINAR.
- The fore finger and the middle finger are held closely attached together and extended directly ahead, parallel to the surface of Dahina, subject to the condition that the middle finger is held in contact with the ring finger.

(ii) Left hand : (बाँया)

- (a) The tips of the middle finger and the ring finger should be kept together in contact with the Banya and at right angles to the point of contact. The contact of the fingers should take place at the that position of the LAO of Banya which is nearest to the KINAR.
 - (b) The wrist should be placed at the juncture of the SIAHI and the LAO, such that the tips of the fingers lie symmetrically on the part of the LAO directly opposite to the position of the wrist. The left hand on Banya should be positioned such that the part of the Lao in contact with the forearm between the wrist and the elbow will be larger than the part of the LAO in contact with the fingers.
- (iii) The settings of the fingers (i) and (ii) combine to form Position A-1.
- (iv) The word 'Dha' is reproduced by simultaneously hitting Banya and Dhina, the word 'Naga' is reproduced by hitting first Dahina (Na) and then Banya (ga). The hitting should be such that an open and sustained sound is produced by both the hands.

Note:

- (i) In all positions, the thumbs of both the hands should be held closely, but flexibly, attached to the rest of the hand. Allowing the thumbs to separate from the fingers, or to be used to support the rest of the hand on the surface of either Banya or Dahina, will result in the inability to correctly reproduce the correct sounds.
- (ii) In the case of both hands, the arms should be held in a fairly straight line from the hand to the elbow. Any excess bending of the wrist will cause undue strain, again resulting in the inability to correctly reproduce the words of Tabla.
- (iii) The method of hitting Dahina in Position A-1 is first by lifting the hand above the Dahina, and then bringing it directly down in the position described. The impact of the hit must be absorbed by the ring and the little fingers, allowing the extended middle finger and the fore finger to strike and rebound from the SIAHI

In striking Banya, the forearm should be kept in contact with the 'Maidan' (मैदान) of Banya, between the Siahhi and Chanti (चाँटि). The natural action of the wrist and fingers will then produce the correct sounds. The tips of the left hand middle and ring fingers should strike and rebound naturally from the LAO of Banya.

POSITION A-2: 'Ghada' and 'gina'

- (i) Right Hand : All four fingers are held closely attached together, slightly cuped, and the pads of the fingers, just beneath the finger nails, are placed at the centre of the Siahhi of Dahina.
- (ii) Left hand : The fingers of the left hand are placed as in Position A-1 (ii)
- (iii) The settings (i) and (ii) combine to form Position A-2.
- (iv) The words 'Ghada' and 'gina' are both reproduced by hitting on Banya (Gha or Gi) and Dahina (da or na) in succession. 'Gha' or 'Gi' is an open sound while 'da' or

'na' are closed sounds produced by solid contact.

POSITION A-3 : 'Dena' and 'Dhena'

- (i) Right hand:
 - (a) The fore finger of this hand is used to strike the left part of the Saihi of Dahina. The striking action is such that the finger is allowed to rebound from the surface of Dahina, creating open, or sustained, sound.
 - (b) The pads of the middle finger, ring finger, and little finger, held closely attached together, are placed on the right half of the Siah of Dahina. In this stroke, the fingers make a more solid contact with the surface of Dahina, creating a closed, rather than a sustained, sound.
- (ii) Left hand: The fingers of the left hand are placed as in Position A-1 (ii).
- (iii) The settings under (i) and (ii) combine to form Position A-3.
- (iv) The words 'Dena' and 'Dhena' are reproduced by the simultaneous hitting on the Banya and left half of the Siah of Dahina ('De' or 'Dhe'), followed immediately by hitting on the right half of the Siah of Dahina ('na'). i.e. (i) - (a) and (ii) together, followed by (i) - (b) 'Dhena' is stronger than 'Dena'.

POSITION A-4 : 'Thak' (Soft contact)

- (i) Right hand: The fingers of the right hand are placed as in position A-1
- (ii) Left hand : The fingers of the left hand are closely attached together and placed flat on the surfaces of the Siah and Lao of Banya. The fingers are so placed that the complete Siah comes under the palm of the hand.
- (iii) The settings (i) and (ii) combine to form position A-4.
- (iv) The word 'Thak' (Soft) is produced by hitting first Dahina (Tha) and then Banya (k).

POSITION A-5 : 'Thak' (Hard contact)

- (i) Right hand : The fingers of the right hand are placed as in position A-2.
- (ii) Left hand : The fingers of the left hand are placed as in Position A-4.
- (iii) The settings (i) and (ii) are said to form the position A-5.
- (iv) The word 'Thak' (hard) is produced by hitting Dahina (Tha) and Banya (k) in succession.

POSITION A-6 : 'Tena'

- (i) Right hand : The fingers of the right hand are placed as in position A-3 (i).
- (ii) Left hand : The left hand fingers are positioned as in A-4 (ii).
- (iii) The combination of settings (i) and (ii) forms the position A-6.
- (iv) The word 'Tena' is produced by hitting simultaneously on Banya and left half of Siah of Dahina (Te), followed immediately by hitting on the right half of Siah of Dahina (na). [i.e. (i)-(a) and (ii) together, followed by (i)-(b)].

POSITION A-7 : 'Tha'

Position A-1, without the use of Banya, is called Position A-7.

The word 'Tha' is produced by hitting of Dahina only, in this position.

Accordingly, the various changes of positions of the fingers, corresponding to the words of Rela kaidas II and III, may be exhibited in the form of the following Table:

TABLE III

Rela Kaida II:	'Dena', 'Thaka'	A-3 to a-4
-	'Tena', 'Thaka'	A-6 to A-4
Rela Kaida III:	'Dha', 'Ghada'	A-1 to A-2
-	'Dhena', 'Gina'	A-3 to A-2
-	'Thak"', 'Dhena'	A-4 to A-3
-	'Naga', 'Thak'	A-1 to A-4
-	'Tha', 'Ghada'	A-7 to A-2

By virtue of Table III, it may be seen that Rela Kaida III creates a great amount of strain in the fingers and wrists of a Table player, due to the following changes of positions of the fingers :

+					2				
	Dha	Ghada	Dhena	Gina		Thaka	Dhena	Naga	Thaka
	A-7	to A-2	to A-3	to A-2		A-4	to A-3	to A-1	to A-4
	__	__	__	__		__	__	__	__
0									
	Tha	Ghada	Dhena	Gina		Thaka	Dhena	Naga	Thaka
	__	to __	to __	to __		__	to __	to __	to __
	A-7	A-2	A-3	A-2		A-4	A-3	A-1	A-4

which truly satisfies the requisites of a Gatta-tor composition.

TABLA RIAZ (तबला रियाज)

In order to attain proficiency in Tabla playing, a student of Tabla has to undertake an enormous amount of practice, with regularity and labour, for the sake of perfect reproduction of the words of Tabla. The labour, or hardship undertaken by a Tabla player, is dialectically known as Riaz. Specifically, Riaz conveys the meaning of mechanical practice of reproduction of Tabla compositions, based on the vocal recitation of the composition accompanied by certain well-defined actions (Khali and Bhari) of hands. The term Bhari is defined by the clapping of the hands, and Khali is defined by waving out of the hands, with a separating motion, in place of clapping. It is essential that this Riaz be done under the guidance of an able teacher. It is universally believed that a teacher is worshiped according to the fame achieved by his able student, and thus we are led to recall the famous dialectical proverb 'Sanche guru ke Bal ki Mare na Mara Jai' (साचे गुरु के बाल कि मरे न मार जाय) conveying the meaning that the virtues of a student (Bal) can not go in vain if his teacher Guru is genuine.

In a wider sense, the term Riaz is extended to the term CHILLA (चिल्ला) [5] in Banaras school. A Tabla player is said to complete one CHILLA if he devotes daily eight hours to Riaz and continue the process for forty days. The late Pandit Gokul Prasadji, a famous Tabla player of Banaras School, is known to have completed about twelve CHILLAS during a part of his life time. Pandit Gokulji used to do Riaz every day from Sunrise to Sunset, changing his sitting position uniformly with the movement of the Sun. Moreover, we observe that Pandit Gokulji maintained the standard of keeping his daily Riaz for twelve hours, which exceeds the usual period of daily Riaz for a Chilla. It is said that Pandit Gokulji succeeded in keeping the twelve hour standard of Riaz for about twelve Chillas, or (12x40) days. It is well known, as described by his favourite disciple the late Pandit Mahadeo Prasad (Chowdhary), that Pandit Gokulji's face possessed a scarlet-red appearance, due to the effects of the Sun. It is remarkable that Pandit Gokulji used to create an extra-ordinary vibration with the words **DHIRA DHIRA KITATHAK** (धिर धिर कितक), which was said to be comparable to the vibration of several thousand pigeons flying through the air at one time. On the other hand, it may be mentioned that (6) the great Tabla players Bhairav Sahaiji, Pandit Partappuji, Pandit Baldeo Sahaiji, Pandit Biswanath Prasadji, Pandit Hari Prasadji, etc., of Banaras School, attained spiritually high levels in Tabla, due to their devoted Riaz for the cause of Tabla. Pandit Bhairav Sahaiji was honoured by the then king of Nepal with the title of FARISTA (Angel) of Tabla due to his dedicated Riaz for the deity ASHBHAIRO in Nichibagh. Pandit Partappuji attained an unparalleled position as a solo performer due to his dedicated Riaz of Tabla for one Nawaratri (Nine consecutive nights) for the Goddess Vindhawasini at Bindhachal in Mirzapur. Pandit Hari Prasadji, as narrated by the late Pandit Mahadeo Prasadji (Chowdhary), once silently left his residence for Bindhachal to present his Tabla to Goddess Vindhawasini for one NAWARATRI, but, unfortunately he was obliged to end his performance on the ninth day, due to a sentimental call from one of the members of his family. Pandit Hari Prasadji was mentally shocked by this unexpected interruption, which necessarily prevented the materialisation of his desire to play Tabla for all nine nights of the NAWARATRI. Nevertheless, by the grace of the Goddess Vindhawasini, Pandit Hari Prasadji possessed an extraordinary power of displaying very complex forms of rhythmic pattern through Tabla as well as Pakhawaj. Pandit Biswanath Prasadji, a worthy disciple of Pandit Janaki Sahaiji of Banaras School, possessed supernatural power of displaying the Tabla word 'GEDINNA', as a result of his dedicated Riaz with devotion for the Goddess Annapurna in Varanasi. Due to the blessings of this Goddess, he dreamt a unique SELF-RECIPROCAL composition [1] by the name of DOMUKH SINGHAVI LOKAN, which is a leading example for the students of Tabla of KINNAR GHARANA in Banaras School. Finally, we observe that Pandit Baldeo Sahaiji, by virtue of his dedicated Riaz, developed extraordinarily beautiful applications of Banya, which thus enabled him to create uniquely melodious sounds in the words of his Tabla. The sound of Pandit Baldeo Sahaiji's Banya was comparable to the cooing of a dove.

Here, it would not be out of place to mention the name of a great Pakhawaj player Pandit Kudau Singh of Rewa, who dedicated himself to the development of Pakhawaj playing. Regarding his Riaz on Pakhawaj, it is said that (7) he used to practice continuously from the moment of lighting a big wax candle till the time it was completely extinguished. During the days of Nawab Kalbe Ali Khan of Rampur Estate, a concert was arranged in the court of the Nawab. The Nawab was interested in listening to the joint performance of a great Sarod player, Ustad Bahadur Hussain Khan of Seni-Gharana, and Pandit

Kudau Singh. The concert started with heavy strokes of fingers of both players on their instruments, creating perfect musical tempo and tremendous dynamism. The audience sat spellbound. Unfortunately, in the midst of their musical demonstration, Ustad Bahadur Hussain dropped his JAWA (the striker for hitting the strings of Sarod), which normally leaves no alternative for a Sarod player but to discontinue the flow of his music. However, on this occasion, Ustad Bahadur Hussain continued his performance by playing the strings of the Sarod with his fingers, without any loss of continuity in the divine music. It is remarked that the fingers of Ustad Bahadur Hussain bled profusely because of their friction against the metallic strings of the Sarod. This could not be tolerated by Nawab Kalbe Ali Khan, and he was obliged to end the concert by offering high-sounding appreciation and valuable rewards to these great performers.

Obviously, a devoted student of music can derive a good amount of inspiration from memorable instances such as these. In this particular context, an attempt will now be made to present the Traditional Principles (7) of Riaz, which are intimately connected with the cause of musical inspiration :

Principles of Riaz

- (i) Ek Sadhe Sab Sadhe Sab Sadhe Sab Jai (एक साधै सब साधै सब साधै सब जाय)
- (ii) Asan Baithe Unt ki Tab ho Sidhya Alap (आसन बैठै उंट कि तब हो सिद्ध आलाप)
- (iii) Skkhia, Dikkhia aur Parakhia, (सिखीया, दिखीया और परखीया)
- (iv) Karta Ustad Na Karta Shagird (कर्ता ओस्ताद ना कर्ता शागिरद)
- (v) Upajata Anga Swabhav. (उपजत अंग स्वभाव)

In order to realise the ideas conveyed by the above principles, it is essential for a student of Tabla to grasp the following illustrations in Tabla solo-play.

Principle (i) conveys the well-accepted proverb, 'Jack of all trades is master of none'. Thus, regarding the meaning of this proverb, it follows that a student of Tabla should devote himself completely to his lessons of Tabla, without lending his mind to any other field of music. He should begin to learn Tabla from an able GURU and subsequently, he should do Riaz according to the advice of his Guru. If a student does not trust his Guru, and becomes influenced rather by the acts of other Khalifas, then he fails to master any discipline in Tabla, and turns himself into a 'Jack of all trades.' Therefore, it is essential that a student first of all complete the lessons of Tabla from a particular school, and only subsequently he should try to collect possible Tabla information from other sources. In order to realise the depth of this principle, a student must learn to critically scrutinise the various stages of a solo demonstration in Tabla. As a rule of demonstration, a Tabla player of Banaras School presents a composition of UTHAN (उठान) in the beginning, and subsequently he displays the compositions of BANT, RELA, (रेला) GAT, (गट्ठ) FARAD, (फरद) THEKA, (ठेका) DAGG/LADI, (लड़ी) and CHAKKARDAR, (चककरदार) in succession. It is essential that an expert of Tabla develops the rhythms of UTHAN for a length of time sufficient to create a suitable atmosphere for beginning the composition of BANT. Once begun, the constituent words of BANT are systematically permuted and developed for a necessary length of time until a suitable atmosphere is created for beginning the composition of RELA. Likewise, this process of development is implemented for the next series of compositions of Tabla after RELA. It is often found that a less matured Tabla player can not continue playing any particular composition for the desired length of time, with the result that he fails to create the proper atmosphere for any kind of composition in Tabla, and consequently becomes a 'Jack of all kinds of playing'.

Principle (ii) conveys the idea that a student of music should sit like a camel (Unt) for the attainment of perfection (Sidhya) in this music (Alap). It is well known from highly experienced Khalifas that a student can develop his respirative capacity by making a constant habit of sitting like a camel with his straight backbone. A student of Tabla will be able to demonstrate his solo playing for hours together if he does regular Riaz in this posture of a camel.

Principle (iii) claims that a student should around (DIKKHIA) for various types of demonstration and styles of music, other than what he learns (SIKKHIA) from his Guru, and subsequently he should test (PARAKHIA) and information he receive from another source against the teaching of his Guru.

Principle (iv) states that a student becomes a master (USTAD) of his music if he devotes (KARTA) himself to regular RIAZ, and contrary to his, an individual loses the position of USTAD and comes down to the level of a beginner (SHAGIRAD) if he deliberately neglects his RIAZ.

Principle (v) conveys the idea that a musician is naturally inclined to create (UPAJ) new feelings in his music. In view of this principle, a student of Tabla should try to conceive a new style of playing, along with his RIAZ. Apparently, a new style of playing is intimately related to new settings of fingers and new forms of cross rhythms, leading to the creation of new compositions of Tabla and lines of approach in Tabla playing. As a matter of fact, a student Khalifa of Tabla can engage the audience for hours together by presenting new types of compositions (BOLS) and feelings through his solo demonstration which truly indicates the creative nature of the Khalifa.

Traditional Methods of Tabla Riaz

In order to study the traditional methods of Tabla-Riaz in Banaras School, it is essential to know the basic constituents of that school. It has been discussed previously that the Banaras School of Tabla was created as a result of combining the disciplines of Tabla playing of Delhi School, the disciplines of Pakhawaj playing of Punjab School, and the disciplines of NATCH KARAN of Lucknow School. The first concern for the Khalifas of newly-created school was to conserve and transmit the knowledge of music in their possession. The act of conserving the knowledge of music was a systematic affair for the then Khalifa of music. A professional Khalifa, in communicating his knowledge to a student, was guided by the principle of DUDH (milk), KHUN (blood), and GANDA (red-cord). If the student happened to be a child (dudh) of a Khalifa, then the individual was lucky enough to receive cent percent of the knowledge of his father. If the Student happened to be a nephew or niece (khun) of the Khalifa, then he was lucky enough to receive at most seventy-five percent of the knowledge of his (her) uncle. And if the student was not related (ganda) to the Khalifa, then the disciple was fortunate to receive at most fifty percent of the knowledge of his (her) Guru. The knowledge received from the Guru is dialectically known as ILM in Arabic. In old days, the ILM of music was regarded to be an asset of the family of a Khalifa. Thus, it is observed that the traditional training of music was limited to the members of the family of the Khalifa. The communication of the ILM between a father and his child is well known as 'ILM-SINA-BASINA' in Persian. In order to realise the concept of this term, it is necessary first to know the ideas conveyed by the words ILM-SINA (इल्मसिन) and ILM-BASINA (इल्म बसिना). ILM-SINA refers to the human action required for imitating the form of am him, without actually creating it. For instance, a talented painter can

imitate exactly the outer shape of the historically famous 'Taj Mahal' but he will fail actually create the beauty and majesty of the 'Taj' unless he is familiar with workmanship necessary for constructing this wonder of the world. So the various efforts and actions of the painter required for sketching, colouring and planning may termed ILM-SINA, the act of imitating. Similarly, an intelligent Tabla player can imitate the form of the tabla composition, but he will fail to grasp the actual feeling of the composition unless he knows the discipline and NIKAS (निकास) required to create such a composition. It may be added that an interested individual might attempt to learn Tabla from an authentic book, but he can never realise the exact sound and feeling lying in the Tabla words without the guidance of Guru. It is well-accepted proverb that the advice of a Guru is transmitted orally, this is why the knowledge of music is known as GURU-MUKH-VIDYA. A student losses the grace of his Guru if he depends only on ILM-SINA, rather than striving to learn in a disciplined manner from the Guru. On the other hand, a student acquires the grace of his Guru, if he surrenders himself completely to his Guru, with 'the result that he becomes a true representative of his Guru in the future.

The term ILM-BASINA conveys the idea of keeping the ILM inside (Ba) the physical body (Sina), Precisely, BA-SINA refers to the mind of the student, wherein the thoughts of the Guru are received and preserved for all time. It is said that a Guru of music communicates his invaluable message to his able disciple at a lonely place (NICHHADDAR). Hence it may be concluded that the child (dudh) inherits the cream of the knowledge of his father on the basic of ILM-BASINA

Pandit Ram Sahaiji (as cited by the late Pandit Mahadeo Chowdhary) is said to have been sworn by his Guru, Ustad Modu Khan Saheb, to communicate the teachings of Tabla strictly through a wooden slab in place of Banya and Dahina. This mysterious command of Ustad was motivated by a desire to conserve the fundamental ideas of reproduction (NIKAS) in Tabla of Lucknow School. Pandit Ram Sahaiji started his school of Tabla (2) with eight talented disciples, by the names of Pandit Janaki Sahaiji Pandit Bhairav Sahaiji (nephew of Pandit Ram Sahaiji), Pandit Baijuji, Pandit Paratappuiji, Pandit Bhagatji, Pandit Gouri Sahaiji, Pandit Ram Saranji and Pandit Ishwar Sahaiji, Since Pandit Ram Sahaiji had to explain the ideas of Tabla-playing through a wooden slab, he was naturally led to hit the surface of the slab with great force in order to convey the techniques of reproduction of the various Tabla words. Hence, the first fundamental advice received by these disciples of Pandit Ram Sahaiji was to hit the surfaces of Banya and Dahina strongly, and they were guided to their Riaz accordingly. Unfortunately, however, this method, used by Pandit Ram Sahaiji to transmit the traditional teachings of his Guru Ustad Modu Khan Saheb, was not sufficient to unfold the secrets of the subtle actions of Banya and Dahina which are characteristics of Lucknow School.

This mode of training continued to be used for a considerable period until a new era came into existence. The students of this new era (of Banaras School) incorporated the techniques of playing the percussion instruments like Pakhawaj, Dukkanh (दुक्कड़), Hudhuk (हुदुक्) and Nakaraha (नकारा) . As a result of this, the use of CHANTI of Dahina (as used in Lucknow School) was replaced by the use of LAO or MAIDAN, of Dahina in Banaras School. Consequently, the fundamental words Dha and Tha of Banaras School were reproduced according to the position A-1 (Dha) and A-7 (Tha) (See pages 23 and 26), and the fundamental words 'Gha' 'Ghi' and 'Ghe' were reproduced on Banaya in Position A-2 (page-24). The words represented by the positions A-1 to A-6 (page, 23

Table II) are known as composite words of Banaras School. The fundamental word Dhada (घाड़) of Dukkarh was reproduced by successively combining position A-1 ('Dha') and the position of Dahine in A-2 ('-da'). The fundamental word Dhadhinada (घाधिनाड़ा) of Nakarha was reproduced by successively hitting in the Position A-1 ('Dha') to the new Position A-8 ('Dha') to A-7 ('Na') to A-7 ('-da'). The fundamental word Tright (त्रिधित) of Huduk was reproduced by striking in succession at the new Position A-9 ('Tri') to Position A-2 ('-ghit'). Here, the newly-mentioned Positions A-8 ('Dhi') and A-9 ('Tri') are created as result of the following settings of the fingers :

POSITION A-8 'Dhi'

The position is created as a result of simultaneous hitting on the left half SLAHI of Dahina, and on the LAO nearest of the CHANTI of Banya. The hitting is performed by laterally striking the said position of the SLAHI of Dahina with the tip of the right forefinger, allowing the hand to rebound immediately to the Position A-7 ('na') in order to create the open or sustained sound of 'Dhi'. The left hand will simultaneously strike the Banya as in Position A-1.

POSITION A-9 'Tri'

This position is created by striking with jointly-attached middle finger, ring finger and little finger of the right hand at the centre of the jahi of Dahina, followed immediately by striking at the same spot with the right hand forefinger. Both strokes produce close sounds by solid contact. The Banya is not used for this position.

It may be concluded that a student of Tabla of Banaras School must grasp the sound effects of the words Dhada, Thada, Dhadhinada, Dhathinada and Tright along with the knowledge of the basic position A-1 to A-9 in order to understand the traditions of Tabla playing in Banaras School. This knowledge is essential for studying the rhythmic contributions of the Tabla players of Banaras School. It is remarkable to note that the third generation of great Tabla players, like Pandit Biswanath Prassadji, Pandit Gokul Prassadji, Pandit Baldeo Sahaiji, Pandit Durgahi Lalji, Pandit Jagannath Prassadji and Pandit Chotkuji, due to their inherent sense of creativity and deep insight in teaching, produced a line of a disciples who were able to create a monument in Tabla by the name of BANARAS-BAJ (बनारस बाज). The following chart, which gives the names of the major disciples of Banaras School of Tabla, will serve to show the size and importance of BANARAS-BAJ.

CHART: Banaras School of Tabla Playing

(s/o = son of; d/o = disciple of)

A: First Generation :

Pandit Ram Sahaiji (1830-1876).

B: Second Generation :

Disciples of Pandit Ram Sahaiji.

1. Ram Saranji 2. Bhagatji 3. Pratap Maharaj (alias Partappuji) 4. Baijuji,
5. Bhairav Sahaiji (s/o Pt. Gouri Sahaiji) 6. Janaki Sahaiji (Younger brother of Ram Sahaiji),
7. Ishwar Sahaiji, 8. Yadunandanji, 9. Ranghunandanji.

C: Third Generation :

1. Daragahi Lalji (s/o & d/o Pt. Ram Saranji)
2. Ustad Ata Hussain (of Dacca in Bangla Desh & d/o Bhagatji)

3. Ustad Raja Myan (Gaya district in Bihar & d/o Bhagatji) (Brother of Najju Khan)
4. Ustad Najju Myan (Gaya district in Bihar & d/o Ghagatji) (Brother of Raja Myan)
5. Bhairon Prassadji (d/o Bhagatji) (1844-1940)
6. Jagannathji (s/o & d/o Partappuji)
7. Chotkuji (s/o & d/o Bhaijuji)
8. Biswa Nath Prassadji (d/o Janaki Sahaiji)
9. Gokul Prassadji (d/o Janaki Sahaiji)
10. Baldeo Sahaiji (d/o Janaki Sahaiji)

D: Fourth Generation :

1. Bikkuji (s/o & d/o Dargahi Lalji)
2. Prasanya Banikya (d/o Ustad Ata Hussain)
3. Maulvi Ram Mishra (d/o Bhairon Prassadji) (1870-1940)
4. Mahavir Bhand (d/o Bhairon Prassadji)
5. Mahadeo Prassad Mishra (d/o Bhairon Prassadji)
6. Anokhela Mishra (1914-1958) (d/o Bhairon Prassadji)
7. Nageswar Prassad Mishra (alias Panchoo Maharaj) (d/o Bhairon Prassadji)
8. Mahadeo Prassadji (Chowdhary) (d/o Ustad Raja Myan & Ustad Najju Myan) (1888-1963)
9. Hari Sundarji (alias Bacha Maharaj; s/o & d/o Jagannathji) (1876-1926).
10. Nankuji (s/o & d/o Chotkuji)
11. Bhattuji (d/o Chotkuji)
12. Bhagawan Dasji (Kabl Chabile) (d/o Biswa Nath Prassadji & founder of Kirnar Gharana)
13. Biru Mishraji (Sangat Ratna) (1884-1934) (s/o Bhagawan Dasji & d/o Biswa Nath Prassadji)
14. Durga Sahaiji (alias Nannuji (Scor) (s/o & d/o Baldeo Sahaiji)
15. Lakshmi Sahaiji (s/o & d/o Baldeo Sahaiji)
16. Bhagauti Sahaiji (s/o & d/o Baldeo Sahaiji)
17. Hari Maharaj (elder brother of Kanthe Maharaj & d/o Baldeo Sahaiji)
18. Kanthe Maharaj (d/o Baldeo Sahaiji) (1880-1969)
19. Mahadeo Prassadji (Chowdhary) (d/o Gokul Prassadji)
20. Ustad Yusuf Khan (eldest s/o & d/o Gokul Prassadji)
21. Sanaulla Khan (s/o & d/o Gokul Prassadji)

E: Fifth Generation:

1. Gammaji (s/o & d/o Bikkuji)
2. Mannuji (Mridangacharya) (d/o Bikkuji)
3. Shamta Prassad (alias Gudai Maharaj) (d/o Bikkuji)
4. Shamta Prassad (alias Gudai Maharaj) (s/o & d/o Bacha Maharaji) (Born in 1921)
5. Prakash (s/o Nankuji)
6. Munnulal (s/o & d/o Bhattuji)
7. Uamuna prassad (d/o Bhattuji)
8. Narottam Prassadji (d/o Biruji)
9. Murali Prassadji (d/o & brother in law of Biruji)
10. Nandooji (do/ Biruji)
11. Jalpa Prassad (d/o Biruji)
12. Bechan Prassadji (d/o Biruji)
13. Vasudeo Prassadji (Khalifa) (d/o Biruji) (1905-1959)
14. Ustad Khairat Hussain Khan (d/o Biruji & brother of Ustad Mustaq Ali Khan-Sitarist)

-
15. Babu Ram Mishra (d/o Biruji)
 16. Ram Nath Pandey (d/o Biruji)
 17. Ravi Moitra (d/o Biruji)
 18. Shyamlalji (Chamma Guru) (d/o Durga Sahaiji)
 19. Kallu Myan (d/o Durga Sahaiji)
 20. Vasudeo Prasad (Khalifa) (d/o Mahadeo Prasadji) (Chowdhary)
 21. Ram Sumeru Mishra (d/o Mahadeo Prasadji) (Chowdhary)
 22. Shamta Prasad (alias Gudai Maharaj) (d/o Mahadeo Prasadji) (Chowdhary)
 23. Sharada Sahaiji (d/o Bhagauti Sahaiji)
 24. Mangla Sahaiji (d/o Bhagauti Sahaiji)
 25. Kishan Maharaj (s/o Hari Maharaj & d/o Kanthe Maharaj) (Born in 1923)
 26. Ashootosh Bhattacharya (d/o Kanthe Maharaj)
 27. Natop Babu (d/o Kanthe Maharaj)
 28. Mahapurush Mishra (d/o Anokhelal Mishra).
 29. Ramji Mishra (d/o Anokhelal Mishra)
 30. Ishwar Lal Mishra (alias Lallu) (d/o Anokhelal Mishra)
 31. Chote Lal Mishra (d/o Anokhelal Mishra)

F: Sixth Generation:

1. Ram Prasad Singh (Khanna) [eldest son & d/o Vasudeo Prasad (Khalifa)]
2. Lachmi Narayan Singh [alias Lachchoo Maharaj (s/o & d/o Vasudeo Prasad) (Khalifa)]
3. Vijay Narayan Singh [s/o & d/o Vasudeo Prasadji (Khalifa)]
4. Lalji [d/o Vasudeo Prasadji (Khalifa)]
5. Kedar Nath Bhowmick (author) [d/o Vasudeo Prasadji (Khalifa)]
6. Thakur Shanker Singhji (d/o Ram Nath Pandey) (1915-1980)
7. Kedar Nath Bhowmick (author) (d/o Thakur Shanker Singhji)

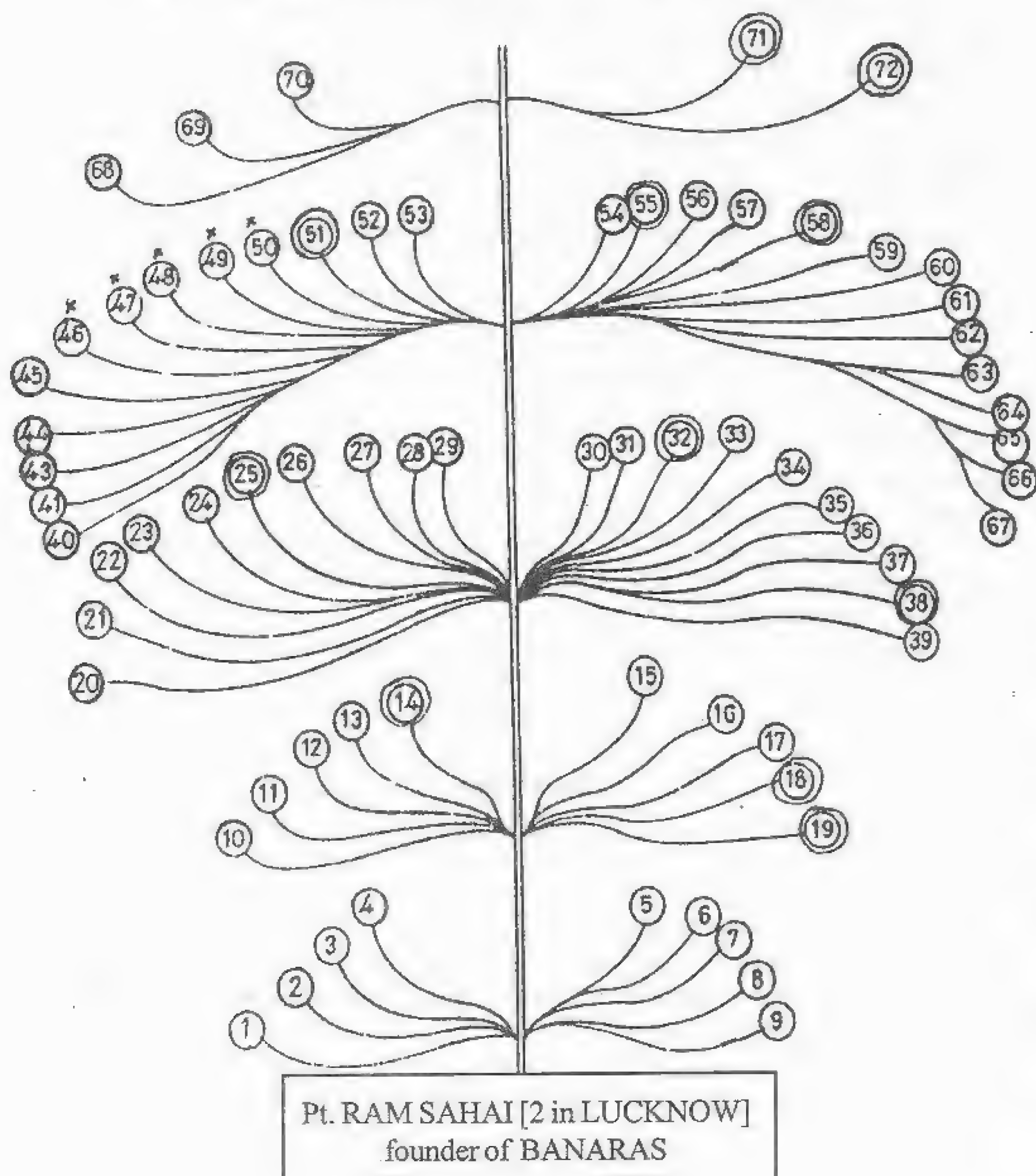
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Acknowledgement

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GENEALOGICAL TREE FOR BANARAS SCHOOL OF TABLA PLAYING [Bhowmick 1981]



(Bhowmick 1981)

First generation of BANARS

Pt. RAM SAHAI (founder of Banaras School)

Second generation

1. Pt. Bhairav Sahai (s/o Pt. Gouri Sahai and last d/o founder)
2. Pt. Janaki Sahai (Younger brother and d/o founder)
3. Pt. Bhagatji (d/o founder)
4. Pt. Pratap Maharaj (d/o founder)
5. Pt. Baijuji (d/o founder)
6. Pt. Ram Saran ji (d/o founder)
7. Pt. Yadunandan ji (d/o founder)
8. Pt. Raghunandanji (d/o founder)
9. Pt. Ishwar Sahai (d/o founder)

Third generation

10. Pt. Dargahilal (s/o & d/o (6))
11. U. Ata Hussain of Dacca (d/o (3))
12. U. Raja Miyan (d/o (3))
13. U. Najju Miyan (d/o (3))
14. Pt. Bhairon Prasad (d/o (3))
15. Pt. Jagannath (s/o & d/o (4))
16. Pt. Chotku (s/o & d/o (5))
17. Pt. Baldeo Sahai (s/o (1) & d/o (2))
18. Pt. Viswanath Prasad (d/o (2))
19. Pt. Gokul Prasad (d/o (2))

Fourth generation

20. Pt. Bikku Prasad (s/o & d/o (10))
21. Pt. Prasanna Banikya (d/o (11))
22. Pt. Maulvi Ram Mishra (d/o (14))
23. Pt. Mahavir Bhat (d/o (14))
24. Pt. Mahadeo Prasad (d/o (14))
25. Pt. Anokhelal Mishra (d/o (14))
26. Pt. Nageswar Mishra (d/o (14))
27. Pt. Mahadeo Prasad Chowdhury (d/o (12),(13) & (19))
28. Pt. Harisunder (alias Bacha) (s/o & d/o (15))
29. Pt. Nanku Mishra (s/o and d/o (16))
30. Pt. Bhattu Mishra (d/o (16))
31. Pt. Bhagwan Das Mishra (d/o (18))
32. Pt. Biru Mishra ((9) LUCKNOW and d/o (18))
33. Pt. Durga Sahai (alias Nannu (sur)) (s/o & d/o (17))
34. Pt. Luxmi Sahai (s/o & d/o (17))
35. Pt. Bhagauti Sahai (s/o & d/o (17))
36. Pt. Hari Maharaj (d/o (17))
37. Pt. Kanthe Maharaj (d/o (17))

38. Ustad Yusuf Khan (s/o & d/o (19))

39. U. Sanaulla Khan (s/o & d/o (19))

Fifth generation

40. Pt. Gamma Mishra (s/o & d/o (20))

41. Pt. Mannuji (d/o (20))

42. Pt. Shamta Prasad (alias Gudai Maharaj (s/o & d/o (28), d/o 20)

43. Shri Prakash Mishra (s/o & d/o (29))

44. Shri Munnulal (s/o & d/o (30))

45. Shri Yamuna Prasad (d/o (30))

46. Pt. Narottam Prasad Mishra (d/o (32))

47. Pt. Murali Prasad Mishra (brother and d/o (32))

48. Pt. Nandu Mishra (d/o (32))

49. Pt. Jalpa Prasad Mishra (d/o (32))

50. Pt. Bechan Prasad Mishra (d/o (32))

51. Pt. Vasudeo Prasad Singh (Khalifa) (d/o (32) & (27))

52. U. Khairat Hussain Khan (d/o (32) & (27))

53. Pt. Babu Ram Mishra (d/o (32) & (27))

54. Pt. Ram Nath Pandey (d/o (32) & (27))

55. Shri Ravi Moitra (d/o (32) & (27))

56. Shri Ram Sumeru Mishra (d/o (38))

57. Pt. Shyam Lal (alias Chamma guru) d/o (33)

58. Kallu Miyan (d/o (33))

59. Pt. Sharada Sahai (s/o and d/o (35) & (37))

60. Pt. Mangla Sahai (s/o and d/o (35))

61. Pt. Kishan Maharaj (s/o (36) and d/o (37))

62. Shri Ashutosh Bhattacharya (d/o (37))

63. Shri Natu babu (d/o (37))

64. Shri Mahapurush Mishra (d/o (25))

65. Shri Ramji Mishra (d/o (25))

66. Shri Ishwarlal Mishra (d/o (25))

67. Shri Chotelal Mishra (d/o (25))

Sixth generation

68. Shri Ram Prasad Singh (alias Khanna)

69. Shri Luxmi Narayan Singh (alias Lachchu Maharaj)

70. Shri Vijay Narayan Singh

71. Thakur Shanker Singh (d/o (54))

72. Dr. Kedar Nath Bhowmick (author) (d/o (51) & (72))

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BANARAS SCHOOL OF TABLA-PLAYING

Dr. K.N. Bhowmick

Banaras Hindu University

[Dr. Kedar Nath Bhowmick was born on November 9th, 1940, at Coochbihar in North Bengal. His father shifted to Banaras, and devoted himself to the cause of promoting Hindustani music. Kedar Nath developed an early interest in music and began his formal studies of Tabla at the age of five with Shankar Singh. After five years he was brought to Pandit Vasudeo Prasad with whom he studied until the latter's untimely death. Pandit Prasad was perhaps the first to study and master all four major schools of tabla - playing. By the age of 15 Bhowmick was selected as an A-grade AIR artist and has accompanied many eminent vocalists and instrumentalists and took many prizes. Dr. K.N. Bhowmick has also distinguished himself in modern education. He took his Ph.D. in Mathematics from Banaras Hindu University in 1964 where he has been a lecturer since 1962].

It is historically known (Gosvami, 1959, Chapter XXVII) that Tabla occupied a prominent place among the musical instruments in Arabia, long before the birth of Islam. In ancient Arabia, Tabla was a popular folk instrument used by women. It is said that one Tubal, son of musician Jubal in Arabia, is the inventor of Tabla.

In fact the word Tabla is derived from a generic word *Tabl* (Bhatt, 1955) in Arabic, which furnishes the idea of an even surface built by means of membrane or a solid material. Hence Tabla stands for the percussion instruments like Bheri, Dhounsa, Mardal, Nakada etc. As such Tabla came to be used as a prefix to the drum instruments like Tabla-nakada, Tabl-ad-markab (kettle drum), Tabl-al-oeel (long drum), Tabl-al-mukhant (hourglass drum). Among all these drum instruments Nakada became popular in India and it is said that Emperor Akbar was an expert in playing on it.

It seems that the Muslims must have brought with them their favourite *Tabl*, but here in India they found the instruments varied and well developed. So they improved their *Tabl* on the lines of Indian varieties and laid the basis for a new type of instrument known as Tabla and *Banya*.

However, it is not possible to find any reference to these instruments in the medieval texts of musical literature, which constantly refers to the use of *Mridanga* in court-music. Had these instruments been derived from *Mridanga*, these would have been mentioned in the musical texts.

Modern methods of Tabla-playing originated from Delhi and subsequently it was propagated to Lucknow, Farukhabad, Bareilly, Ajrala (a village in Meerut) and finally to Banaras. Some people also believe in the independent existence of Tabla-playing in Punjab. There lies a fundamental difference in the modes of playing in Delhi and Punjab. Tabla-players of Delhi followed the pattern suitable for the lighter variety of music, whereas the Tabla-players of Punjab followed the pattern of *Pakhawaj* (Gosvami, 1957, Chapter XXVII) suitable for the then court-music. Because of this, Tabla-player of Delhi constructed the alphabets by the strokes of fore-finger and the middle finger with the circular membrane constituting the Tabla. It is, however, necessary to say that Delhi players make the best use of the border of Tabla for the sake of creating sweet

compositions, and accordingly the mode of playing was famous by the name of Kinare ki Baj. On the other hand, the players of Punjab used to play Banya coated with flour paste, as done in Pakhawaj, which restrains the vibrations as compared with the modern Banya coated with small paste of gum and iron powder; and thus the mode of playing in Punjab took a special name of Bund Baj.

The subject of the present article is to put forward the information regarding the propagation of Lucknow Baj to Banaras, and to exhibit the various compositions of Tabla belonging to six different schools of Tabla-playing in Banaras.

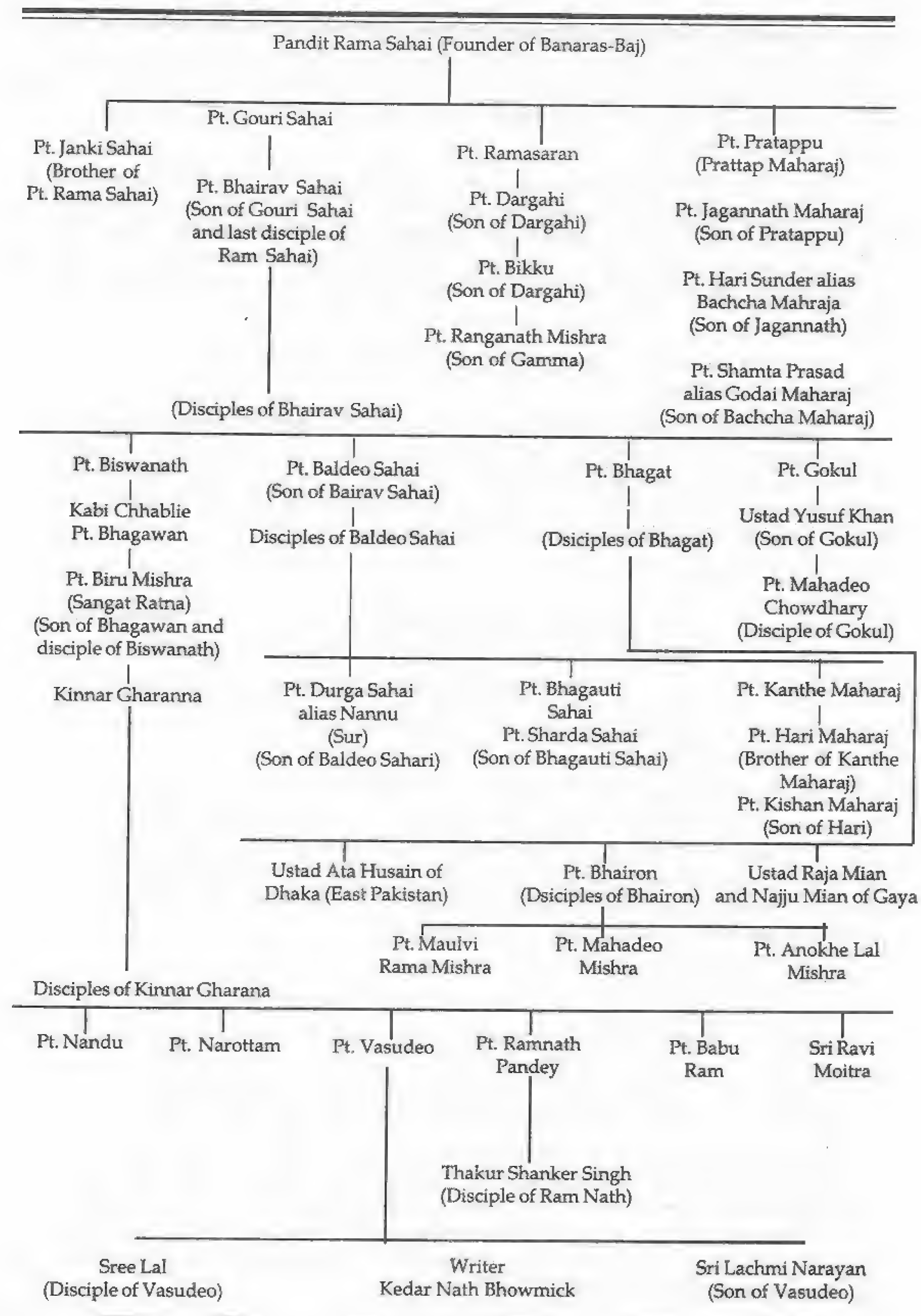
Two famous Tabla-players, Ustad Modukhan and Baxukhan, grandson of Ustad Siddhar Khan Saheb of Delhi (known to be the originator of Kinar-ki-baj) came to Lucknow (Sharma, 1959. Chapter 1) after being invited by Nawab Wajidali Shah of Lucknow. Later, these two brothers applied their knowledge in constructing new compositions suitable for the prevalent Classical Dance demonstration and thus established a particular discipline called Natch-karan in Tabla-playing. A man conversant in Natch-karan can very well accompany stringed instruments like Sitar, Sarod, etc. For instance the poetic composition 'Jai Ganesh Girijapatinandan Bighna-binashan Gananayak Baradayak Gunasagar Gaja Sundal Seek Dantghi Ntaghin Taghirta Dha' conveying the prayer of Lord Ganesh will be reproduced by the following Gat in Tabla, subject to the principle of Natch-karan. (Demonstration.)

Gat in Tin-taal (Matra - 16)

Sam :	Dhaghada Angheda Nagatira Kitataka
Pichla :	Ghinakghi Natete Katagidi Gidighina
Khali :	Gidigina Ghinadha Kataghighi Dinnage
Pahala :	Natirakitatak Dhetdhagi Nadhagina Dhaginakita

It is, however, necessary to mention that the symbol stands for a constant timing beat for the words, constituting the compositions of the prayer of Lord Ganesh and the Gat. The total number of such beats in each of these compositions is sixteen which exactly fit into Tintal. The symbol is technically known as Matra, which came to be used with the other compositions of Tabla later. The terms Sam, Pichla, Khali and Pahala speak about the four standard divisions of 4 matras of Tintal.

Moreover, the mode of playing in Lucknow was further dominated by Hund Baj of Punjab. It is said that Ustad Modu Khan was married to a musical family of Punjab and got a set of five original compositions in Tabla, in the form of dowry, and with the help of these compositions known as Dahej ki Chisen and symbolized the original compositions by the name of Dahej Gat. Probably the composition 'Kat Dhete Dhagetete Katadha Angin Dha Getete Katan' comes under the category of Dahej Gat, which reveals that the players of Lucknow were equally competent in using the central part and the border of Tabla. It may, however, be mentioned that the mode of playing in Banaras is purely derived from Lucknow Baj with the distinction that the compositions of Banaras Baj are biased with the then percussion instruments like Huduk, Dukkad and Nakada. For instance, the compositions involving the words Bhadhinada, Gidinada belonging to Huduk, have been incorporated by the players of Banaras, leading to the separate creation by Banaras-baj. It is well known that Pandit Ram Sahai of Banaras learnt Tabla-playing from Ustad Modu Khan and he is known to be the first man who laid the foundation of Banaras Baj. Ustad Modu Khan, having no issue, happily disclosed all the secrets of



Lucknow Baj including Dahej Gat to Ram Sahai, a rare fortune for an individual, which made him secure the best position as a Tabla-player of that era. The following chart exhibits a sort of link of the great Sahai Family and others who constitute the Banaras School of Tabla-playing:

The chart given pre-page clearly shows that the late Vairav Sahai shouldered the major responsibility of propagating the knowledge of Pandit Ram Sahai through his able students like Pandit Biswanath Sahai, Pandit Gokul Sahai, Pandit Bhagat and his son Pandit Baldeo Sahai. Many persons of the eastern part of our country took lessons from Banaras school and consequently Banaras Baj assumed a separate name of Purab Baj.

It is, at this stage, necessary to mention some of the special features of Tabla-techniques of Baldeo, Biswanath And Gokul.

The late Baldeo was a unique sweet player and it is said that every composition of Tabla used to appear excellently well in his hands due to his masterly command over Banya. He used to play the following composition of a Gat, where the words like Ghighinag and Kikinag are produced by the dominant use of Banya, famous by the name of Gans in technical language. (Demonstration).

Gat in Tin Taal (Matra - 16)

Sam : Ghighinagdhina Dhagetirakitdhina Taktakdhina Ghighinadhina
Pichla : Dhagetirakitdhina Ghighinagdhindhagetirakittuna kata
Khali : Takikinaga Tinatagetirakita Dhinaghighinaga Dhindhagetiraka
Pahala : dhinaghighinaga Dhindhagetirakita Dhinaghighinaga
Dhindhagetirakit.

The late Biswanath was famous for using the words Ghedanag, Gidinna in various compositions of Tabla. He was a great devotee of Goddess Annapurna and by Her grace he created a unique Lombilom composition, famous by the name of Sher-Jhapat. The main feature of this composition is that it is self reciprocal by words, and it is played in Adi Laya in Tintaal. The composition of the following Gat rightly satisfies the necessary condition of Sherjhapat. (Demonstration).

Gat in Tin-taal (Matras - 16)

Sam : Dhadhadha Katakatakata Gidigidigidi Nagenanagena
Pichla : Ghighidinghighi Dindinghighi Takatata Dhanagadig
Khali : Gadiganafdha Tatakata Ghighidindin Ghighidinghighi
Pahali : Nagenanagena Digidigidigi Takatakataka Dhadhadha

It is, however, necessary to mention about the celebrated word Gedinna, produced by Biswanath on Tabla. It is said that the vibration of Gedinna was sufficient to extinguish a big illuminated Jhari consisting of a large number of candles. The following composition of a Mohara involving Gedinna is due to Biswanath. The grace of this particular piece can be well perceived, subject to the prominent reproduction of the words Gedinna and Kadha on Tabla (Demonstration).

Mohara in Tintaal : (Matra - 8)

Khali : gedinna Kitatakadhatete Kitataktirkita Taktirakitatak

Pahala : Dhiridhirikithiri Dhirikidhatete Kitatakakdha Dhiridhirikita

The late Gokul was interested with Gat and Farad, (a class of compositions in Tabla), involving the arrangement of the words like 'Dha Tete Tete Dhage Tete Dhatirakita Dha Tete', 'Kitdhan Tirakitatak Dhirikita Dha Ghadan Dha Ghedanag Denatak', 'Tirakit Dhet Gadigan Dhag Din Din Nag' etc. which are really hard nuts to crack for a Tabla-player. He was an expert in introducing Dhirakit in various compositions of Tabla. The following compositions of a Farad suggests certain intricacies in the arrangement of the words, as commonly observed in the composition of Gokul (Demonstration).

Farad in Tintaal : (Matra - 16)

Sam : Dhatete Tetedhage Tetedhatira Kirdhatete

Pichla : Gidinna Kitakitirakit Dhetekidha Genatuna

Khali : Kittaktirakita Taktakit Takithi Nadhatriakita

Pahala : Dhateteghedanag Nagtekit Dhatirakit Takdhiridhirikit Dha

Intricacies in the above composition are due to the unsymmetrical distribution of the number of words in each matra, which are not usually the case in the composition of a Gat; and as such they are not easy to produce on Tabla. It is, however, necessary to mention that Farad belongs to a class of composition in Tabla, which has no Joda. Technically Joda conveys the meaning of a particular permutation of a given composition, based on the mode of presentation of the same composition.

In order to study the various schools in Banaras, it is necessary to classify them into three zones corresponding to the localities by the names of Ramapura, Piyari and Kabirchoura. Kabirchoura school of playing may further be divided into four parts corresponding to the residences of the respective tabla-experts like Pandit Kanthe Maharaj and Kishan Maharaj, Pandit Shamta Prasad, Pandit Gamma Mishra and Pandit Ranganath Mishra and Pandit Sharda Sahai, as mentioned in the Chart I.

The Ramapura school was established by late Pandit Bhairon (Sarma, 1959. Chapter I) who produced eminent tabla-players like the late Pandit Maulviram Mishra, Pandit Mahadeo Mishra and late Pandit Anokhelal Mishra. The mode of playing of this particular school are mostly concerned with the compositions involving the arrangement of the words 'Dhene gena tak tak dhene gene dhada ghe ghe naga dhinadhada gina'. The late Anokhelal used to play five compositions pertaining to these words and had a good command over these compositions. It is needless to mention that he was an expert in playing Na Dhin Dhin Na, a common composition known to every talba-player. Among the students of Anokhelal the names of Shree Mahapurush Mishra, Shree Ramji Mishra (son of Anokhelal) and Shree Ishwarlal Mishra are worth special mention.

The Piyari school of Tabla-playing was initiated by late Pandit Bhagawan Mishra and extended by his worthy son, the late Pandit Biru Mishra. By virtue of his poetic talent Bhagwanji was famous by the name of Kabi Chhabile. The book 'Chhabile Chhata' (Bhagwan Mishra, Chapter I) manifests that he was a vocalist of Kinnar family, as mentioned in his poem:

“Basata Sada Kashi Puri Piyari Kalan Sudham
Gayak Kul Me Pragat Bho Sukabi Chhabile Name”

Hence, this particular school is also famous by the name of Kinnar Gharana.

Various compositions of Tabla belonging to this school consist of the words Ghedanag, Ghadan, Denatak, Kitadhan and Trighit. The students of this school generally learn the compositions of Mohara, Uthaan, Bant, Rela, Tripalli Gat, Chowpalli Gat, Darjedar Gat, Ekhatthi Gat, Laggi, Gat Paran and Kabitta. Biruji's famous Mohara involving the words 'Ghetirtitatak Dhage Tete Kata Ghena Dha' cannot be forgotten. Compositions based on the arrangements 'Dhaginnad Dhagiattana Dhatit' and 'Dhatirakit Dha Tete Dha Tete Kitadhateteghina' accompanied by charming Tihai, are played frequently in the beginning of a solo demonstration in Tabla, as Uthaan. Later, the Uthaan is followed by a Bant like 'Dhig Dhina Tirakit Dhina Dhagena Dhig Tinada' and Relas like 'Dha Tete Ghedanag Denatak' and 'Dha Ghedanag Dha Ghedanag Dhage Tete Ghedanag Denatak Dhira Kitatak.' It must be well understood that the compositions of Gat are based on the mode of presentation of Rela. For instance, the composition of the following Gat should be played after the second Rela, as mentioned earlier. (Demonstration).

Gat in Tintaal : (Matra - 16)

Sam : Dhadh A Dha Ghedanag Denatak
Pichla : Takghada Ndha Ghedanag Denataka
Khali : Dheradhera Kitatak Takghadan Ntaka
Pahala : Din Kat Dheradhera Kitataka

It may be mentioned that Tripalli and Chowpalli Gat were obtained from his second Guru-dev Ustad Abid Hussain Khan Saheb of Lucknow, and the compositions of Darjedar Gat came from Ustad Chunnu Khan Saheb of Bareilly. The terms Tripalli and Chowpalli speed about three and four different stages of Laya in a particular composition of a Gat, which was initiated by the celebrated Tabla-player Ustad Haji Bilayat Ali Khan of Farukhabad. Darjedar Gat is a specialised type of composition which can be presented at good number of stages of a particular cycle. The compositions of the type 'Dena Dena Dena Dhagina Dhagina Dhagina Takita Takit Takit' and 'Katadhin Nagtak Dhenagina Dhenaghedanag Tirakitatak' may be tried for presenting at least in eight different stages of Tintaal. Moreover, the following composition, which is played in a single handed manner is an example for Ekhatthi Gat played in Tintaal. (Demonstration).

Ekhatthi Gat: (Matra - 16)

Sam : Tete Tete Tate Teta
Pichla : Tete Tin Tin Tada
Khali : Ann Tena Tate Teta
Pahala : Aan Tin Tin Tin

Moreover, the compositions involving the words Dhagenadhig Tinada Dha Dhig Dha Dha Dhi Nakit Tak Dhinadi Dha Dhi Nada and Gidinada are known as Laggi. These compositions are very useful for accompanying Thumri songs. It may be mentioned that Biruji was an exponent in playing Dhadhinada.

Touches of Gat Paran came into existence when Biruji learnt Pakhawaj from the famous Pakhawaj player Pandit Madan Mohan of Banaras. Compositions involving 'Dhagin Dhatt Dhag Din Dha Kita Takita Taka', 'Kitatak Thun Thun Kitatak Thu Thu Nakita Takita', 'Kitadhin Naad Dhen Dhage Tete Ghe Ghe Tete Takakita Dhumkit Dhumkita Dhitta' belong to Gat Paran.

Kabitta is a poetic version based on a particular rhythm composed by Bhagwanji, which led Biruji to compose a class of compositions in Tabla on the lines of Natch Karan.

The late Nanduji, as a worthy disciple of Biruji, followed the lines suggested by his gurudev and he attained the mastery of playing Theka and Laggi. The following composition of a Gat of Nanduji is still remembered with great admiration by the veteran Tabla-players of Banaras. (Demonstration).

Gat in Tintaal (Matra - 16)

Sam :	Kitatakgiddi Ghinnadanada Ghinanataghina Dhaginatete
Pichla :	Kitdhaginadhag Tunakitadhina Dhaginadhagina Dhagtunakat
Khali :	Kitdhaginadhag Tunakitadhina Dhaginadhagina Dhagtunakat
Pahala :	Kitdhaginadhag Tunakitadhina Dhaginadhagina Dhagtunakat

The late Vasudeoji took his first course of study from Yusuf Khan and Biruji successively and learnt the fundamentals of setting the fingers. Later on, he learnt various Tabla-techniques from great Tabla-players like Ustad Natthu Khan Saheb of Delhi, Ustad Karam Ilahi Khan Saheb of Punjab, Ustad Ghunnu Khan Saheb of Bareilly, Ustad Salari Khan Saheb of Farukhabad, Ustad Shammu Khan Saheb of Ajrala, Ustad Sher Khan (uncle of present Ustad Ahmad Jan Khan Thirakua) and Ustad Raja Mian of Gaya. Thus, he was capable of playing Tabla in four different styles derived from the Schools of Lucknow, Delhi, Ajrala and Punjab. He was an exponent in playing Rela, Gat, Farad and had a collection of three thousand compositions of Gat. I heard him accompanying great Kathak dancers like Pandit Shambhu Maharaj and Pandit Birju Maharaj who adored his immaculate memory and technique of applying the principles of Natch Karan. Regarding his own creation, it is worthwhile to mention that he had a great capacity of expressing any class of Tabla-composition in the form of Tripalli, Chowpalli, etc. He could also give demonstration in Tabla freely in Paun, Paunedune, Sawai and other Layas for hours together. Moreover, he had a great command over giving solo demonstration in any Taal as freely as commonly done by a Tabla-player in Tin Taal.

The late Pandit Kanthe Maharaj of Kabirchoura school had shown his great eminence in constructing Pakhawaj-cum-Tabla compositions and trained his students accordingly. Among his students, the names of Pandit Kishan Maharaj, Shree Ashutosh Bhattacharya and Pt. Sharda Sahai need special mention.

Kantheji used to play the following compositions of Bant which sound charming in solo demonstration in Tin Taal. (Demonstration).

Bant in Tin Tall (Matra - 8)

- I. Dhet Dhinag Dhen Dhage Tirakita Tunkita
Tage Tirakita Dhet Dhinagi Dhina Dhage Tirakita
- II. Dhage Tirakita Tage Tirakita Dhagenage Tuna Katta
- III. Ghinanad Tak Dhinad Dha Tete Teteghena Takdhinad

His brother Pandit Hari Maharaj was an expert Pakhawaj and Tabla-player and he had a great mastery over the Laya constituting a particular cycle.

Pandit Shamta Prasad, besides learning from his father, also collected some compositions from the late Pandit Mahadeo Chowdhary (a favourite student of Gokulji). It is worthwhile to mention some of these compositions played by him frequently in solo demonstration in Tintaal. The following compositions of Gat involving the arrangement of the words used to appear very frequently in the hands of the late Bacha Maharaj. (Demonstration).

Gat in Tin Taal: (Matra - 16)

Sam : Kat Tete Tete Kata Gadi Gana
Pichla : Dha Tirakita Dhatete Kata Gadi Gana
Kahli : Dha Tit Dha Gidinnada
Pahala : Dha Tirikita Dhatete Kata Gadi Gana

The compositions involving the arrangement of the words, 'Ghina Tete Dhagina Dha Te Ghina Tunagina' as a Bant, 'Kitdhan Tirakitatak Dhirakita Dhaghadan Dhadghedanag Denatak' and 'Gidinna Kitatak Dha Ta Ghedanag Dha Gedanag Dha' as Farad was obtained from the late Mahadeo Chowdhary.

The mode of playing of Pt. Ranganath Mishra differs mostly from those of the other schools in Banaras. He is very much interested in playing Parans with the setting of the finger of Pakhawaj. The compositions involving the words Dhe Tete Tagen, Tagennatadha, Tetekatagadigana with various details of laya are frequently played by him in solo demonstration.

Pandit Sharda Sahai started learning the fundamentals of Tabla from his father, the late Bhagavati Sahaiji at the age of seven, but unfortunately he lost his father at the age of 9. Consequently, he had to seek the kind help of Kantheji who with all affections accepted him as a disciple. Shardaji continued his studies till the last hour of the life of Kantheji and learnt valuable compositions of Gat and Bant. Thus, it is observed that the fundamentals of the setting of fingers resembles almost with Bhagautiji, whereas the method of presentation of Tabla mostly resembles that of Kantheji.

The following compositions of Gat reveal the marked distinction between those of Bhagautiji and Kantheji. (Demonstration).

Composition of Bhagautiji

Gat in Tin Taal: (Matra - 16)

Sam : Kathitdha Gedinta
Pichla : Tadhinta Nadhatirakita
Khali : Dhatitdha Gadinta
Pahala : Natinta Kitadha Dingadi

Comosition of Kantheji

Gat in Tin Taal: (Matra - 16)

Sam : Dhaghedanagtete Ghadandhagetete

Ghedanagdenataknagtirakitatak

Pichla : Tirakitataкта Tirakitaghedanag Dhatirakitagheda Nagdhatirakita

Pahala : Tirakitataкта Tirakitaghedanag Dhatirakitagheda, Nagdhatirakita

Summary and Conclusions

1. The Composition of Baldeoji, as presented above, is purely derived from Tabla.
2. The composition of Sherjhapat consists of the words Dha, Gidi, Ghi, Ta, Dig and Tak of Tabla, whereas the words Gadigan, Nagen, Kata are purely derived from Pakhawaj.
3. The words Ghad ā n, as found in the compositions of Gokulji, Biruji and Kantheji, has its equivalent word Ghadan in Pakhawaj; whereas the word Tad ā n is a Pakhawaj word.
4. The words Dh ā d and Dh ā da, as found in the composition of Ramapura School, belong to Pakhawaj, and the words Dhenagena, Tak, Ghinag and Dhen belong to Tabla.
5. The word 'Dhaginnad', as found in Pyiari school, consists of the words like Dhagin and Nad belonging to Tabla and Pakhawaj respectively.
6. The words Dhat and Takitataka, belonging to the composition of a Gatparan, have their equivalent words Dhan and Kathetekata in Tabla, which were followed by Biruji while playing the Gatparan.
7. The words Ghinnad and Kinnad, as played by Nanduji, were created by combining the words Ghi and Ki of Tabla with the word of Nad of Pakhawaj.
8. By virtue of observations in (1-7) it is revealed that the compositions of Tabla in the Banaras school contain a good amount of Pakhawaj words.

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(Courtesy: Madras Music Academy, Journal Vol. XLIV 1973, Parts I - IV)

ACOUSTICAL RANDOM BIO-MODELS FOR THE SYSTEMS OF INDIAN DRUMMING

K.N. Bhowmick

Department of Applied Mathematics

Institute of Technology

Banaras Hindu University

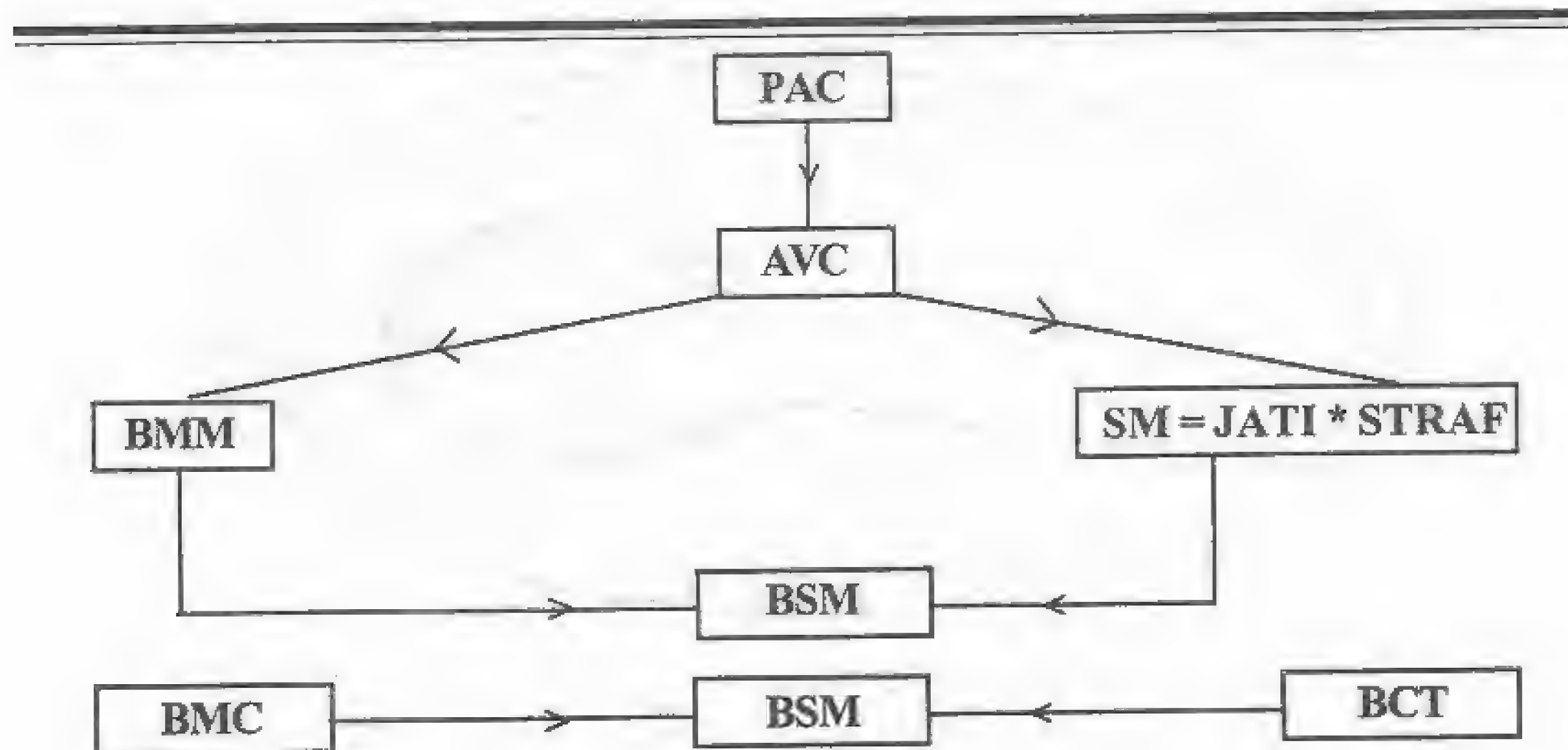
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ABSTRACT

The present article highlights certain random acoustical functions for the systems Indian drumming. A drumming, being an art of playing on drum, gives rise to **Music Acoustics**. A process of drumming is random or stochastic, depending on the total number of occurrences of certain type of sound production through a drum within given interval of time. A system of drumming is a composition of the basic characteristics of a certain school of drumming and its genealogical features.

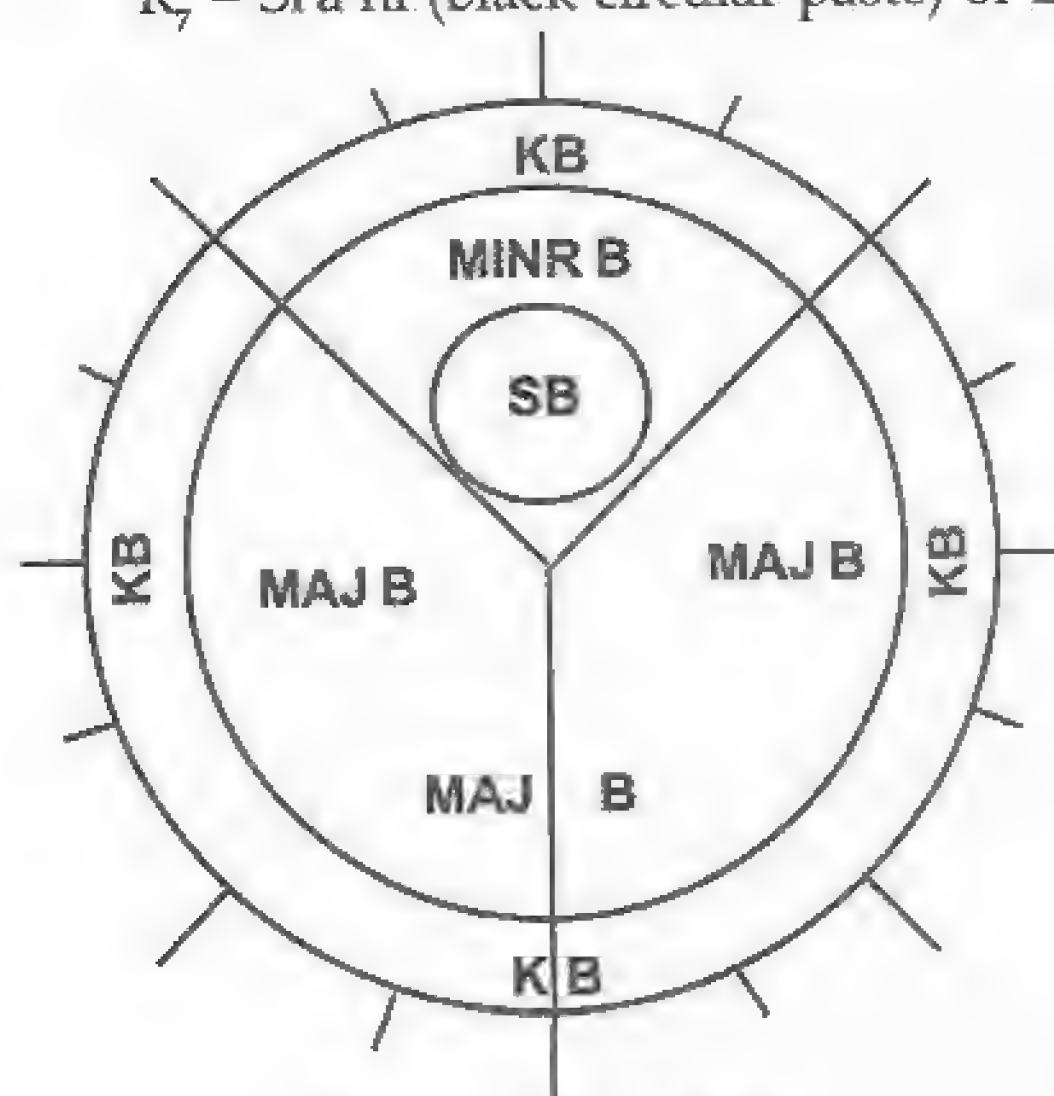
Key words: Acoustical - Bio - Models

INTRODUCTION: The term 'acoustic' happens to occur in various situations in Physics. In particular, a 'Musical - Acoustic' is an effect of sound which pleases our mind (**Chitty Ranjak**) according to Indian School of thought. In light of ancient musical literature, quite a good number of mathematical models came into existence earlier [1], [2] & [3] based on a cybernetical approach. A sound production results due to the reproduction of a word or stroke through a certain standard region of a drum head in a random manner. In particular, a word of **Tabla/Pakhavaj/Mridangam** is randomly reproduced by the strokes of the fingers of our hands on various regions of a drum head, forming syllabic instants for the process of drumming. A sequence of certain fixed number of syllabic instants including timing rests (**Vishranti**) forms a **jā ti**. Playing of **jā tis** on a drum is governed by Information Theory. Thus, the information content (or entropy) for 'n' syllabic instants happens to be 'n' bits per pattern of **jā ti**. Essentially, a drumming is a psychic phenomenon which gives rise to **Psycho-Aesthetic-Control (PAC)** and **Audio-Visual-Control (AVC)** due to the drummer. Moreover, **AVC** gives rise to **Bio-Matrix-Model (BMM)**, **Stochastic Models (SM)**, **System-Theoretic Random-Acoustical-Function (STRAF)** and **Bio-Stochastic-Model (BSM)**, which may be identified through the following steps:

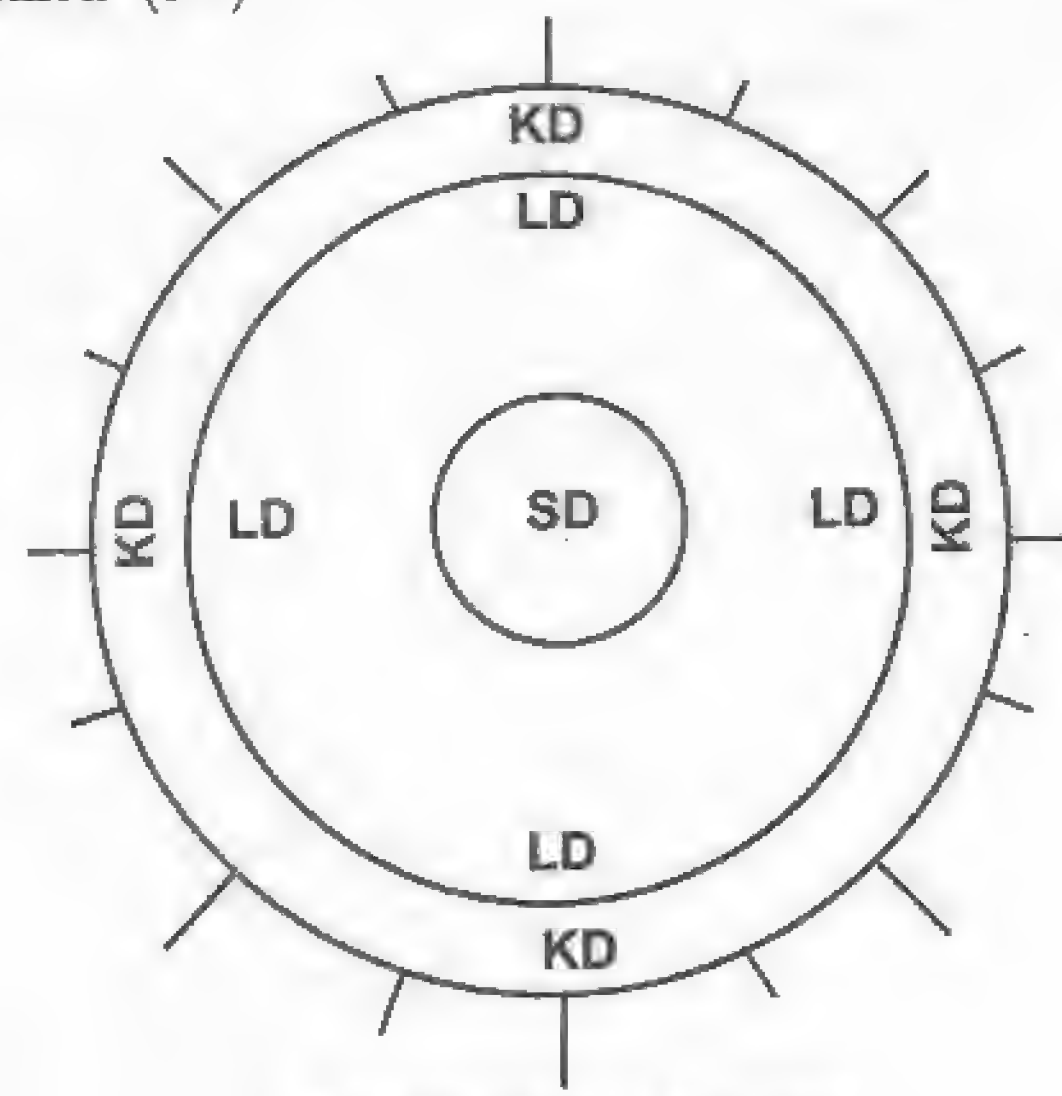


STRAF	≡	ACOUS (melody, tone, stress, grace)
BMM	≡	BIO (I; J; K)
BSM	≡	BIO (I, J; K; Ri)

- R_1 = Minor skin region of Bā nya (MINRB),
 R_2 = Si ā hi of Bā nya (SB),
 R_3 = Major skin region of Bā nya (MAJB),
 R_4 = Kin ā r (or annular border) of Bā nya (KB),
 R_5 = Kin ā r (or annular border) of D ā hin ā (KD),
 R_6 = Lao (or circular skin region) of D ā hin ā (LD) &
 R_7 = Si ā hi (black circular paste) of D ā hin ā (SD)



Drumhead of Banyā



Drumhead of Dahina

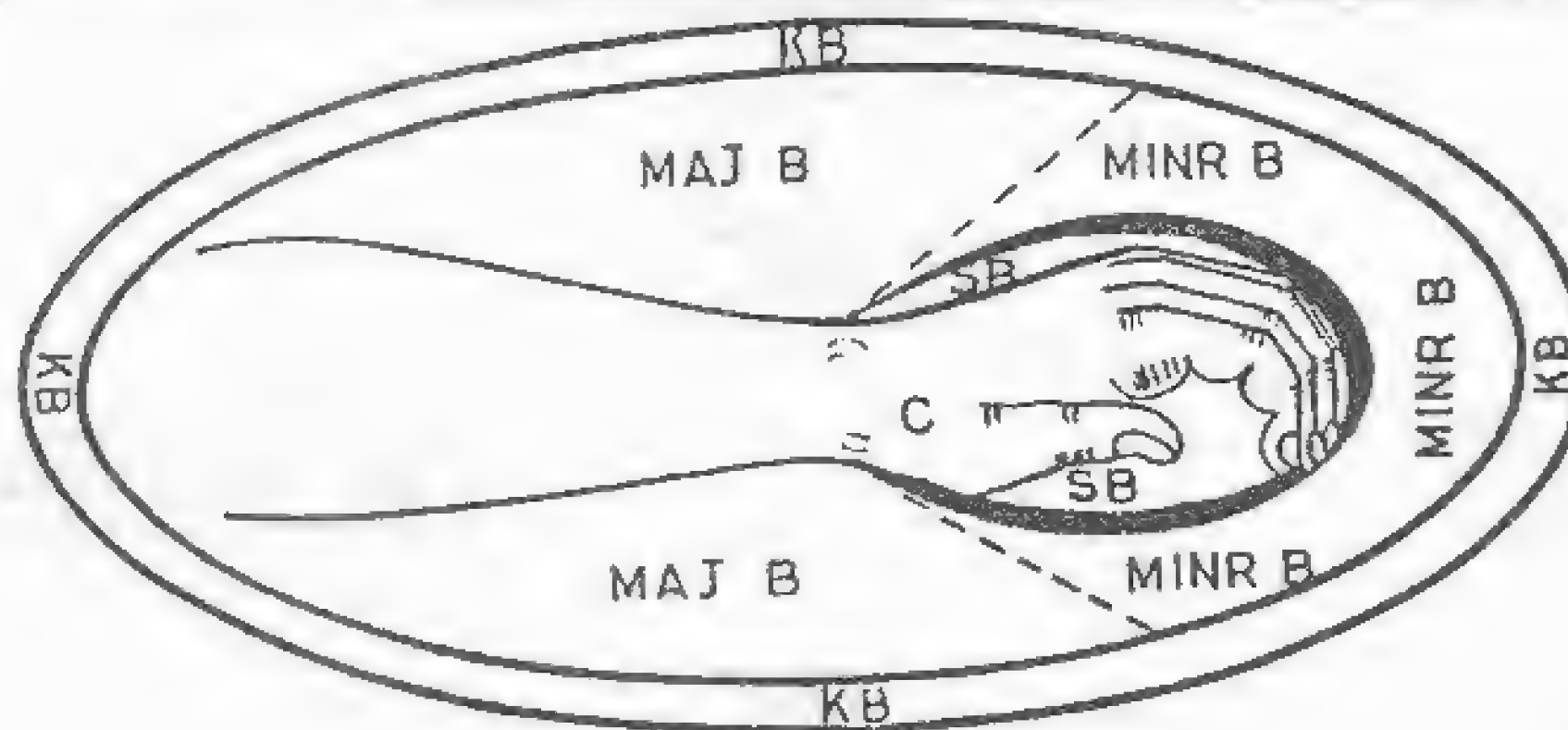


fig 2

Position of the left hand on Bā nyā
C : Wrist of the left hand

The object of the present paper is to compute the probabilities of STRAF and BSI associated with the process of drumming through Tabla.

Ancient drums of India :

Quite a good number of drums came into existence in ancient India, which resemble the shapes of Tabla, Pakhā vaj and Mridangam. In particular, the URDHAK and ANKIK pushke drums resemble the shapes of Dā hin ā (right hand component of Tabla) and Pakhā va Mridangam. NAKADA resembles the shape of Banyā (left hand component of Tabla). well known drum KHOL, of Bengal resembles the shape of ancient drum MRIDANGA/ GOPUCHIYA (the end of the tail of a cow). Acoustical features of the aforesaid ancient drums deserve special mention as ancestors of Tabla/Pakhā vaj and Mridanga. Looking at ancient text NATYA-SHASTRA due to Bharat Muni one can find the detailed description of the drumming on PATAHA which is closely associated with the playing of Tabla/Pakhā va Mridangam. In the year 1984, a remarkably new composite drum came into existence by the name of BHAHMMA-VADYA (Fig. A) which was created by Shri Babulal Verma (alias Devasia Guruji) of Dewas in M.P. (India). Guruji constructed the Brahmma Vadya by combining a long cylindrical drum with the ancient drums DUDOOR and KUNDI. Curious enough, Guruji can effectively display the sound production due to the ancient drums Damaroo, Nakā da, Pataha, Dholak and Ankik Pushkekars. Acoustical features of this new composite drum deserve special investigation.

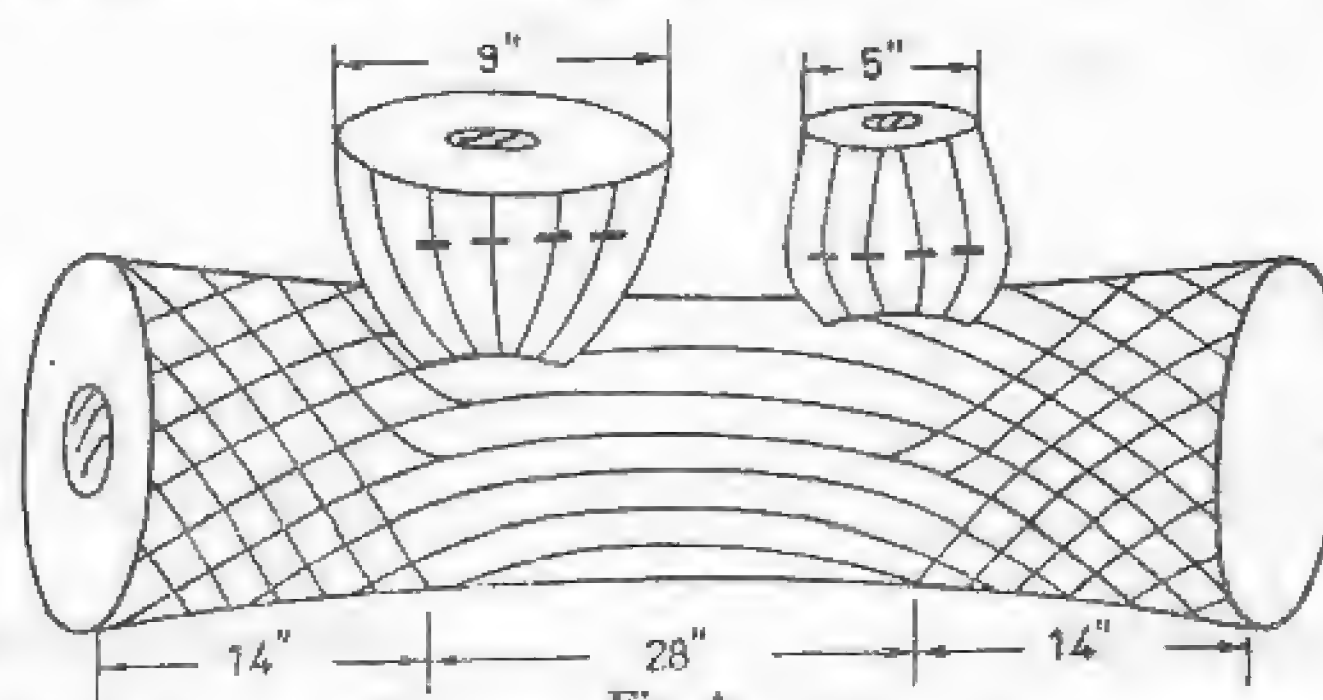


Fig. A

Systems of Indian Drumming

Indian drumming is associated with a certain local traditional and culture of India. In particular, the traditions of drumming of Tabla, Pakhā vaj and Mrudangam are associated with the places viz., Delhi, Lucknow, Ajrā dā, Farukhabad, Banaras, Riwā, Datiā, Mathurā, Bishnupur (Bengal), Patiala and Tanjore in India. Genealogical features of drumming vary from place to place. The author of the present article belongs to BANARAS SCHOOL, of Tabla playing which is represented by seventy two noted Tabla players of Varanasi. Pandit Vasudeo Prasad Singh (Khalifa), a great master of Banaras School, who could display six different styles of Tabla playing wonderfully by projecting good many acenstical variations through Tabla.

Estimation of Probabilities of STRAF

STRAF = ACOUS (A_1, A_2, A_3, A_4) is constituted by the mutually exclusive components A_1 = Melody, A_2 = Tone, A_3 = Stress and A_4 = Grace which randomly occur in various acts of drumming through the regions R_i ($i = 1$ to 7) of Tabla.

Hence, the probability of STRAF may be expressed as

$$P(\text{STRAF}) = P\left(\bigcup_{i=1}^4 A_i\right) \quad (1)$$

Probable Values of BSM

Bio-characteristic elements of a hand (Fig 3 and 4) depend on the outcome of a certain sound production due to a single stroke on a certain region R_i of a drum head. Consequently, the probable values of BIO ($I; J, K; R_i$) per single C, G of the component of a certain hand may be expressed by means of the formula:

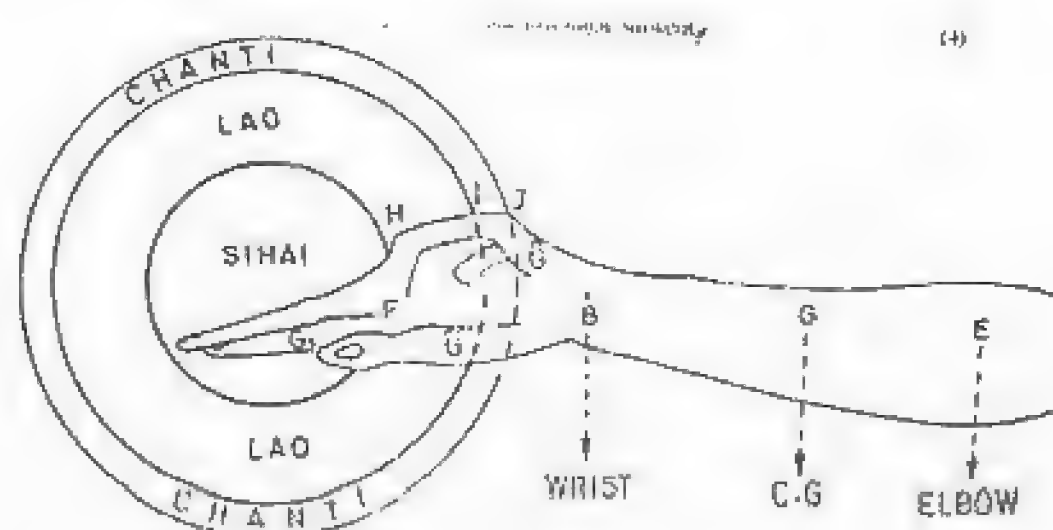
$$P[\text{BIO}(I; J, K; R_i)] = P\left(\begin{array}{l} \text{a bio-characterist} \\ \text{element per single C.G} \\ \text{for certain value of I} \end{array}\right) \quad (2)$$

$$P_i\left(\frac{\text{a sound production due to a single stroke}}{R_i}\right) \quad (2)$$

In particular, for Dāhinā ($i = 1$) and Bānya ($i = 2$), the formula (2) may be specialised in the forms

$$P_i[\text{BIO}(1; J, K; R_1)] = (1/9) p_T (\text{a sound production due to a single stroke}/R_i) \quad (3)$$

$$P_i[\text{BIO}(2; J, k; R_1)] = (1/7) p_t (\text{a sound production due to a single stroke}/R_i) \quad (4)$$



Position of Fig 3 (a) the right hand on Dā hin ā

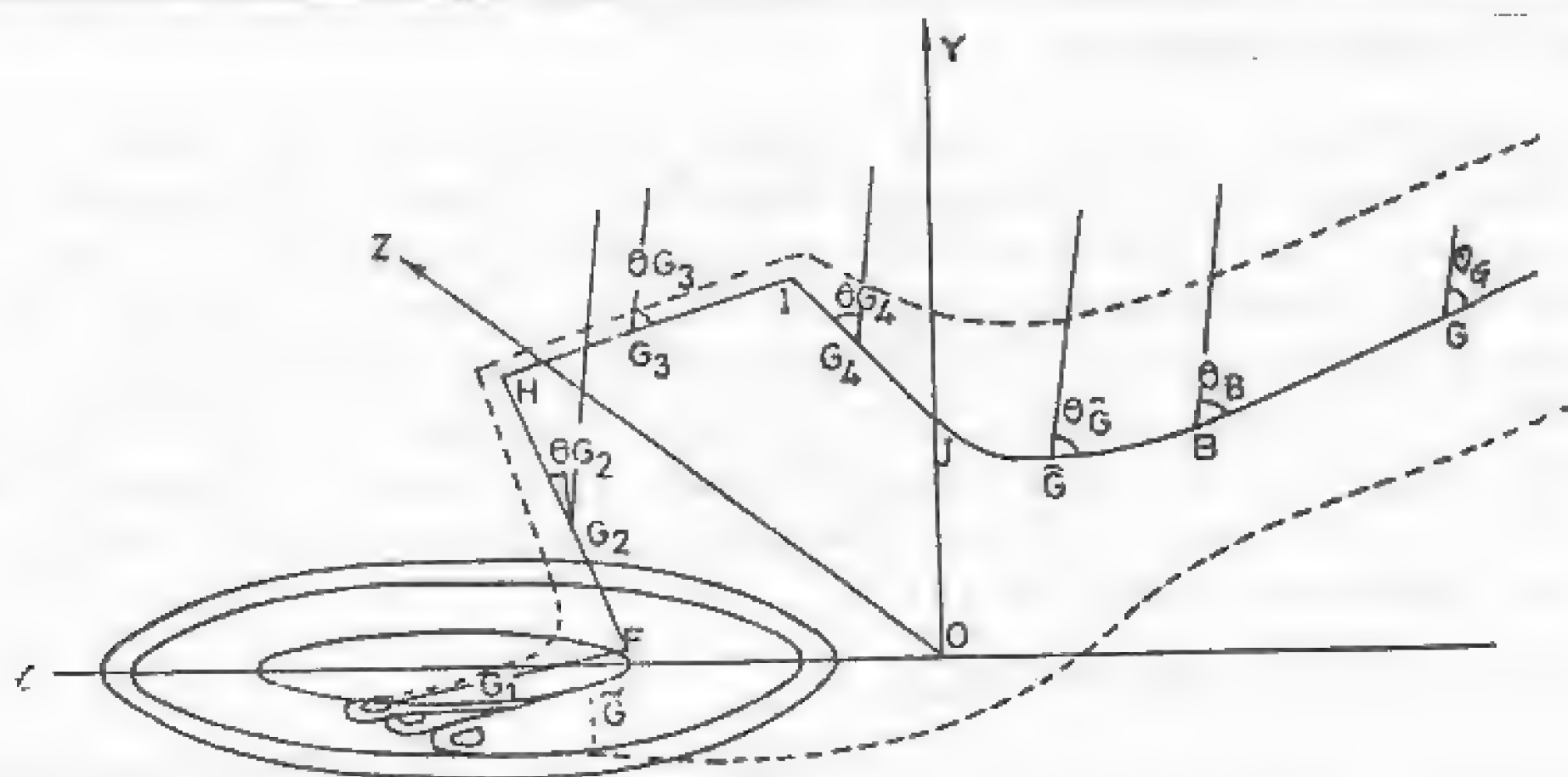


Fig. 3(b) Angular states θ_{G_i} , $\theta_{\tilde{G}}$, θ_{G_i} ($i = 2, 3, 4$), $\theta_{\hat{G}}$, θ_B of the C.G.s. of thumb, part Fig. 3(b) of fingers, wrist, and the fore arm of the right hand.

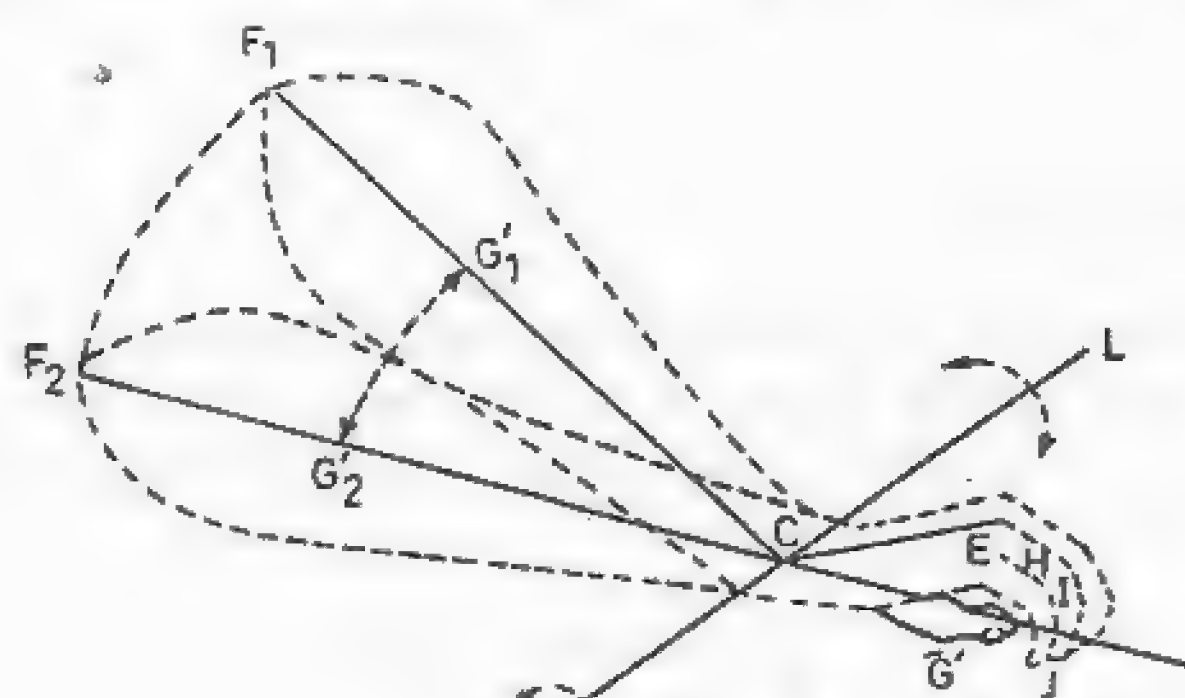


Fig 4(a)

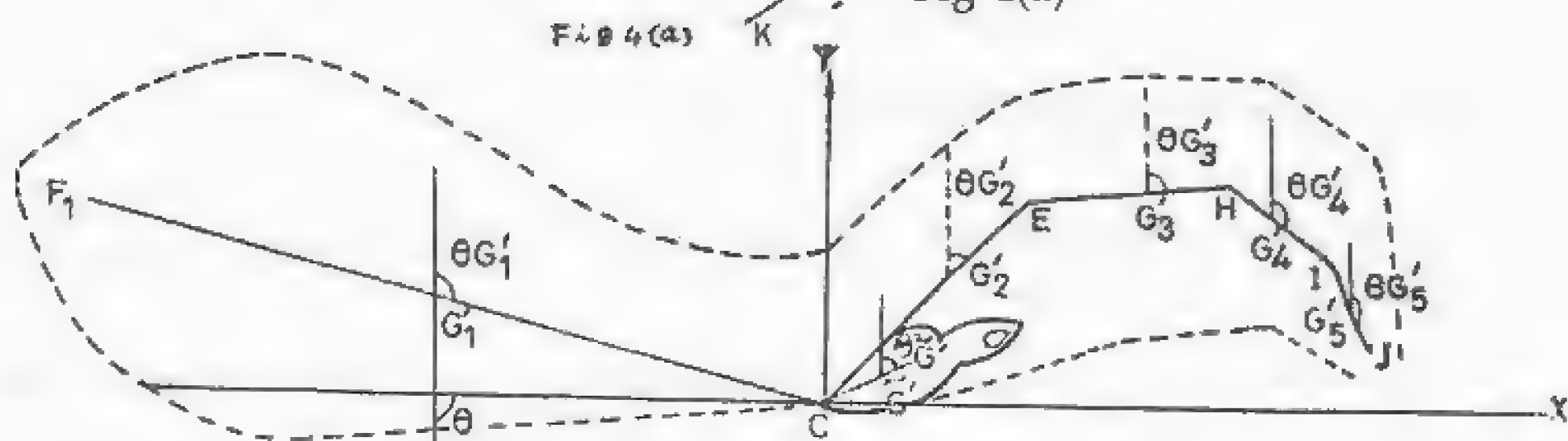


Fig 4(b)

Angular states θ_{G_i} ($i = 1$ to 5), θ_{G_1} of C.G.s. of the fore arm, thumb back palm and the parts of the fingers of the left hand

Articulated double strokes are formed on the composite regions of the drum head of Dahina ($1 = 1$) and Banya ($1 = 2$). Consequently, the resulting bio-characteristic motion may be represented by $BIO(1; J, K; R_1) \wedge BIO(2; J, K; R_1)$. Now, assigning the value J_1 ($1 = 1$) and J_2 (for $1 = 2$) to J at a time one can arrive at the results

$$P_t \text{ (a pair of bio-characteristic elements for the angular states } J_1 \text{ and } J_2) = 1/63 \quad (5)$$

$$P_t (\text{SPDS}/R_1) = P_T (\text{SPDS}/R_3) = P_T (\text{SPDS}/R_4) = (2/13)^2 \quad (6)$$

$$P_T (\text{SPDS}/R_7) = P_T (\text{SPDS}/R_8) = (2/43)^2$$

(7)

$$P_T (\text{SPDS}/R_2) = (1/13)^2 \text{ AND}$$

$$P_T (\text{SPDS}/R_5) = P_T (\text{SPDS}/R_6) = P_T (\text{SPDS}/R_9) = P_T (\text{SPDS}/R_{10}) \\ = P_t (\text{SPDS}/R_{11}) = P_t (\text{SPDS}/R_{12}) = (4/43)^2 \quad (8)$$

where SPDS stands for sound production for double strokes.

Hence, combining the results (5) to (8), one can finally arrive at the results:

$$P_t [\text{BIO} (1;J, K;R_1) \wedge \text{BIO} (2;J_2, K;R_2)] \\ = P_t [\text{BIO} (1;J_1, K;R_4) \wedge \text{BIO} (2;J_2, K;R_3)] = (1/63) (2/43)^2 \quad (9)$$

$$P_t [\text{BIO} (1;J_1, K;R_4) \wedge \text{BIO} (2;J_2, K;R_3)] = (1/63) (1/13)^2 \quad (10)$$

$$P_t [\text{BIO} (1;J_1, K;R_2) \wedge \text{BIO} (2;J_2, K;R_2)] \\ = P_t [\text{BIO} (1;J_2, K;R_1) \wedge \text{BIO} (2;J_2, K;R_2)] = (1/63) (2/13)^2 \quad (11)$$

$$P_t [\text{BIO} (1;J_4, K;R_4) \wedge \text{BIO} (2;J_2, K;R_2)] \\ = P_t [\text{BIO} (1;J_4, K;R_4) \wedge \text{BIO} (2;J_2, K;R_4)] \\ = P_t [\text{BIO} (1;J_4, K;R_4) \wedge \text{BIO} (2;J_2, K;R_4)] \\ = P_t [\text{BIO} (1;J_4, K;R_2) \wedge \text{BIO} (2;J_2, K;R_3)] \\ = P_t [\text{BIO} (1;J_4, K;R_2) \wedge \text{BIO} (2;J_2, K;R_4)] \\ = P_t [\text{BIO} (1;J_4, K;R_4) \wedge \text{BIO} (2;J_2, K;R_4)] \\ = P_t [\text{BIO} (1;J_4, K;R_4) \wedge \text{BIO} (2;J_2, K;R_4)] = (1/63) (4/43)^2$$

(12)

Summary and Conclusion

The present paper highlights certain BSM associated with the system of Indian drumming through Tabla/Pakhā vaj/Mridangam. It is worthwhile to mention that STRAF may be expressed in terms of four random elements viz. Melody, Tone, Stress and Grace which vitally influence the process of drumming. Finally, an attempt has been made to highlight certain BSM associated with the bio-characteristic elements of the hands and their associated parts (fingers, back palms and wrists), causing open (resonating) and closed (muffled) sound productions through the drums in a random manner.

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ACOUSTICS OF SOUND IN INDIAN DRUMMING

- a cybernetical approach

by K.N. Bhowmick

Department of Applied Mathematics

Institute of Technology, Banaras Hindu University

VARANASI, INDIA

Advances in Systems Sciences and Applications (1995) Special Issue 1, 1-6
The present article highlights a scientific study concerning the acoustics of sound through the most popular Indian drums Tabla, Pakhavaj and Mridangam. An acoustic is an affect of sound emanating from a certain source. Musical acoustics, in particular, is a finer realisation of sound which pleases our mind. Two forms of musical acoustic are identified by virtue of the intrinsic quality of a musical instrument, auditorium and the grade of performance on the instrument itself. A skilled drummer creates finer effects of sound subject to Bio-feedback control relative to a musical environment. The object of the present investigation is to find a BIO-ACOUSTICAL-MODEL for Indian drumming based on the principle of Cybernetics.

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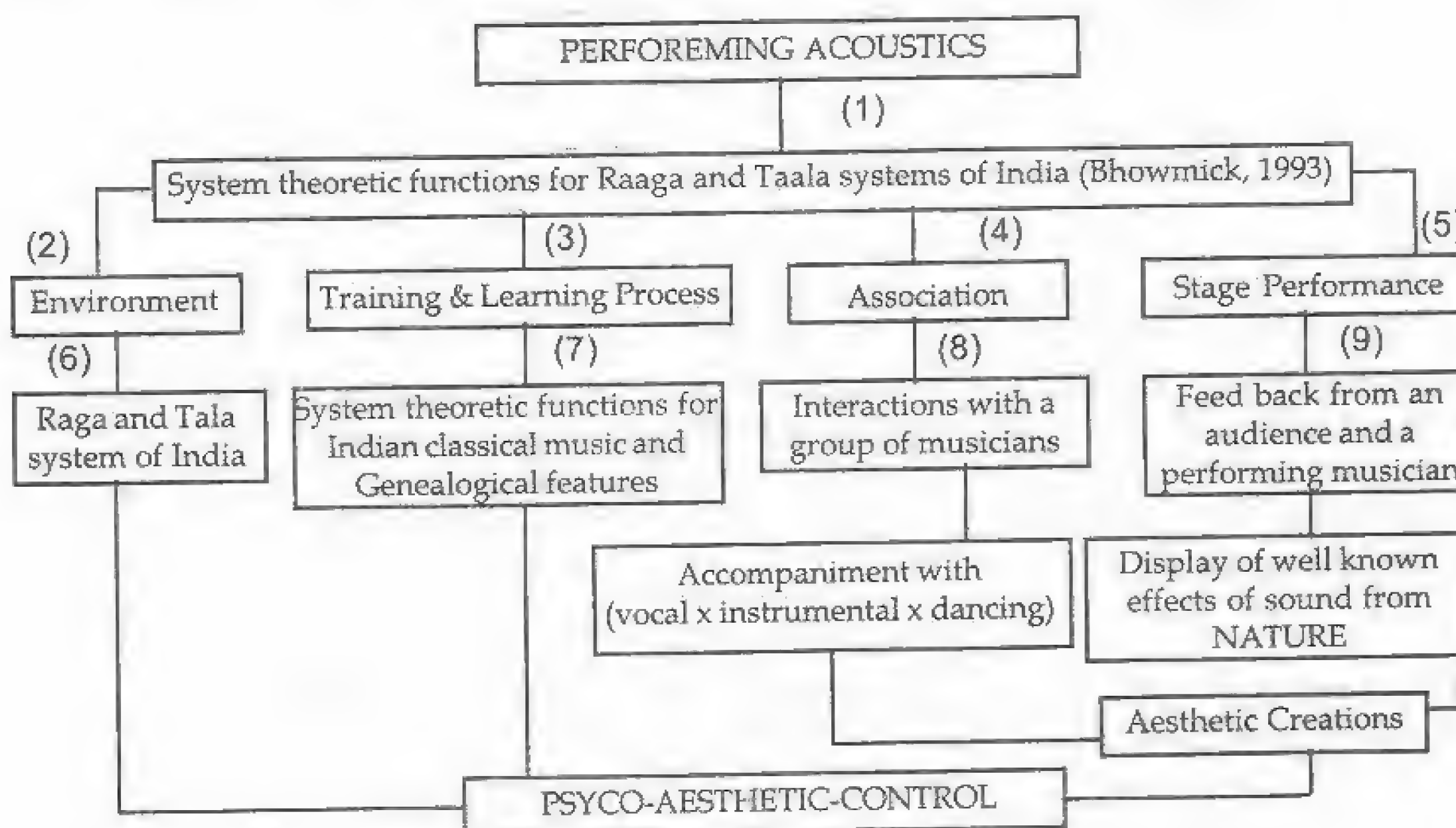
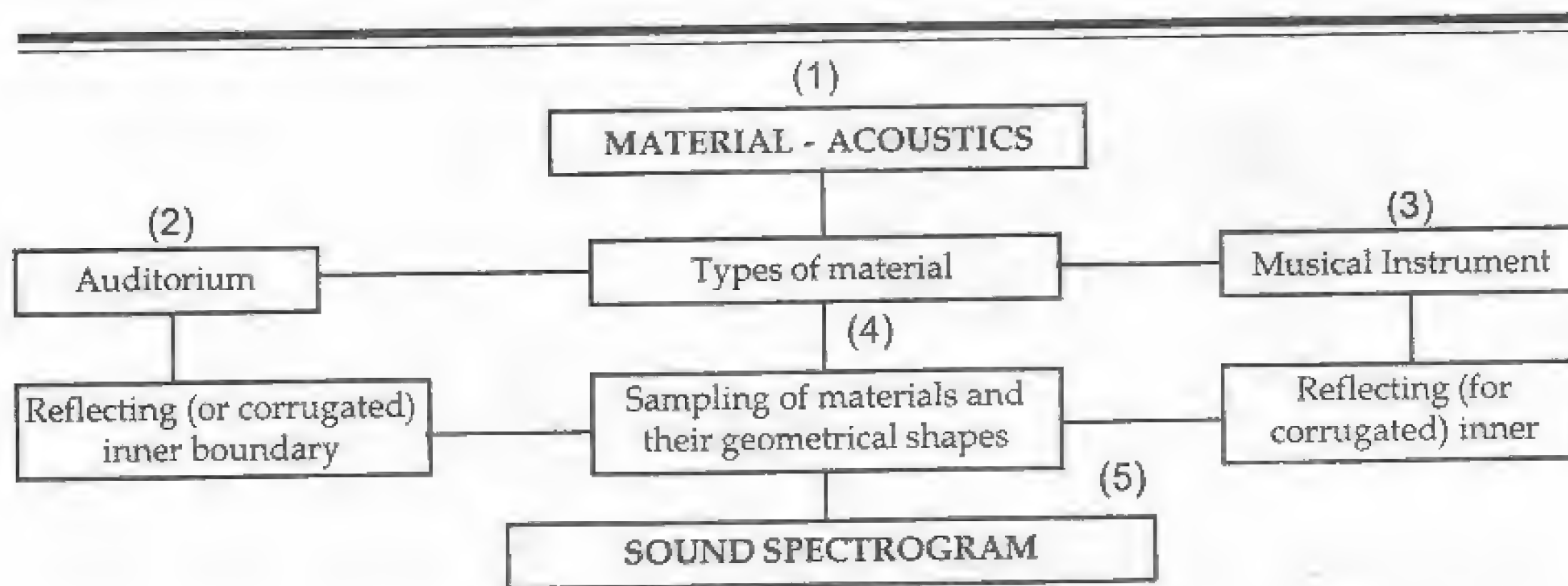
1. Introduction

A drumming is an art of playing on a percussion. An acoustic of drumming is a combined effect of sound emanating from a drum and it's surrounding auditorium due to a certain mode of performance on the drum. An aesthetic of drumming is governed by PSYCO-AESTHETIC-CONTROL due to a drummer, leading further to Audio-visual-control for drumming. A system of drumming through Tabla or Pakhavaj has been identified as a composition of system theoretic function for a certain school of drumming and it's genealogical features.

The object of the present paper is to construct BIO-MATRIX-MODEL (BMM) and SYSTEM-THEORETIC-ACOUSTICAL-MODEL (STAM) for Indian drumming.

2. Block diagrams for acoustics

A block diagram is an effective means for a scientific study. As such, the acoustics of Indian drumming may be systematically studied through the following steps (Bhowmick 1993, 1995):



3. Trajectorial Controls and Geodesics

Gravity plays an important role in Indian drumming. Bio-control tensions come into existence due to sophisticated movements of the hands and the fingers leading to a style of drumming. A particular mode of drumming is associated with guided movement of the hands and the fingers relative to a drum head of Tabla (Fig.1). As such, a moving mass 'M' is guided to move along a trajectory, subject to the governing dynamical equations

$$MR(t) = WC(\theta) - T(t), \quad (1)$$

where $R(t) = (X(t), Y(t), Z(t))^*$ stands for instantaneous position of M, $(.)$ denotes the time derivative, θ is the angle of inclination of the drumhead with vertical, $C(\theta) = (\cos \theta, \sin \theta, 0)^*$, $W = Mg$ is the weight of M, $T(t) = (T_1(t), -T_2(t), T_3(t))^*$ stands for the trajectorial control of 'M' and $(*)$ denotes the transpose of a matrix.

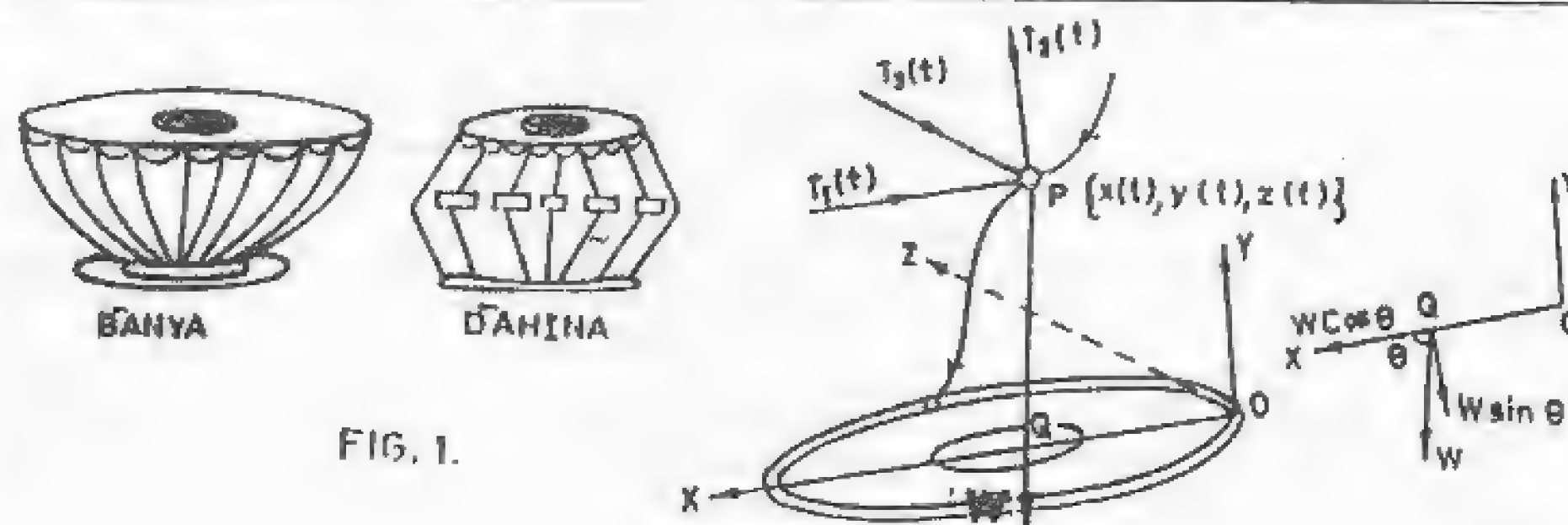


FIG. 1.

Now integrating (1) with respect to 't' the instantaneous velocity and position of 'M' are given by the following vector equations.

$$M[R(t) - R(0)] = W t C(\theta) - [U(t) - U(0)] \quad (1)$$

and

$$M[R(t) - R(0)] = t[MR(0) + U(0)] + W(t^2/2) C(\theta) - \int_0^t U(u) du. \quad (2)$$

Where $U(t) = T(t)$ and $U(t) = (U_1(t), -U_2(t), U_3(t))^*$ is the modified control of 'M'.

Apparently, the equation (3) furnishes the non-trivial trajectorial states $R^*(t)$ of 'M' subject to the independence of at most two members of the set $\{U_i(t); i = 1, 2, 3\}$ of control components. It is worthwhile to mention that the trajectory of 'M' may be precisely determined by means of a GAIT ANALYSIS machine, and as such $U(t)$ may be computed by using (3).

3.1 GEODESIC TRANVERSED BY M

By virtue of the equation (2), a trajectory of 'M' between two instants t_1 and t_2 of time may be minimized subject to the variational condition.

$$\delta \int_{t_1}^{t_2} ds = 0 \Rightarrow \int_{t_1}^{t_2} [-X(t)\delta U_1(t) + Y(t)\delta U_2(t) + Z(t)\delta U_3(t)] / s dt = 0 \quad (3)$$

where 'ds' stands for the line element in three dimensions. In view of the independence of $U_i(t)$ ($i = 1, 2, 3$), one can arrive at one of the following possibilities:

- (a) $U_i(t) = F_j(U_j(t))$, $U_j(t)$ and $U_k(t)$ are independent $\forall j \neq k$ and
- (b) $U_i(t) = F_j(U_j(t))$, $U_k(t) = G_j(U_j(t)) \forall i \neq j \neq k$ and $U_j(t)$ is independent.

Now, assigning the values $i = 1$, $j = 2$ and $k = 3$ (without loss of generality) to (a) and associating (2) and (4) subsequently, the resulting control functions $U_i(t)$ ($i = 1, 2$) happen to satisfy the integral equation

$$[MR(0) + u^*(0)] [u(t) - u(0)] + 2WC^*(\theta) [tU^*(t) + \int_{u=0}^t U^*(u) du] + [-1, 1, 0] [V^2(t) - V^2(0)] = 0. \quad (4)$$

where $\forall S(t) = \{U_1(t), U_2(t), U_3(t)\}$

On the other hand, assigning the values $i=2, j=1$ and $k=3$ to (b) (without loss of generality) and associating (2) and (4) subsequently, the control functions $U_i(t)$ ($i = 1,2,3$) happen to satisfy the integral equation.

$$[MS(o)+V^*(o)] [V(t)-V(o)]+2WC^*(\theta)[tU^*(t)-\int_{u=0}^t U^*(u) du]-[-1, 1, 1] [V^2(t) - V^2(O)] = 0. \quad (6)$$

$$\text{where } S(t) = \{ (-1)^{i-1} X_i(t) \} \ i = 1, 2, 3 = \{ X_1(t), -X_2(t), X_3(t) \} = \{ X(t), -Y(t), Z(t) \}$$

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4. AXIAL CONTROLS

Axial controls come into existence by while rotating the right hand around the virtual axes. I, II and III (Fig. 2) and the left hand around the axis KCL (Fig.4). The right hand is subjected to the resultant bio-control tension $T_i(\tilde{p})$ per unit mass relative to the axis J ($J = I, II, III$) acting at the point $\tilde{P} : (\tilde{X}(t), \tilde{Y}(t), \tilde{Z}(t))$ of the hand. Hence, assuming the inclinations $\tilde{\psi}$ ($i=1,2,3$) of the position vector OG of the CG of the right hand relative to the axes I, II, III, one can arrive at the dynamical equations.

$$\tilde{\psi} = g\tilde{D} - \tilde{T}(\tilde{P}).\tilde{D} \quad (7)$$

$$\text{where } \psi = [Jk^2\psi_1 K_2^2\psi_2 K_3^2\psi_3] \quad (8)$$

$$\tilde{T}(\tilde{P}) = [T_1(\tilde{P}), T_2(\tilde{P}), T_3(\tilde{P})], \quad (9)$$

$$\tilde{D} = [\tilde{d}_I, \tilde{d}_{II}, \tilde{d}_{III}] \tilde{D} = \text{diag}[\tilde{d}_I, \tilde{d}_{II}, \tilde{d}_{III}] \quad (10)$$

$$(\tilde{d}_I, \tilde{d}_I) = (\sqrt{\tilde{y}^2(t) + \tilde{z}^2(t)}, (\sqrt{y^2(t) + z^2(t)},)) \quad (11)$$

$$(\tilde{d}_{II}, \tilde{d}_{II}) = (\sqrt{\tilde{z}^2(t) + \tilde{x}^2(t)}, (\sqrt{z^2(t) + x^2(t)},)) \quad (12)$$

$$(\tilde{d}_{III}, \tilde{d}_{III}) = (\sqrt{\tilde{x}^2(t) + \tilde{y}^2(t)}, (\sqrt{x^2(t) + y^2(t)},)) \quad (13)$$

$$((\tilde{d}_I, \tilde{d}_y) = (\text{Distance of 'G' from 'J' axis, Distance of } \tilde{P} \text{ from J axis}). \quad (14)$$

K_i ($i = 1, 2, 3$) are the radi of gyration of 'M' relative to the axes I, II, III, is the position vector of the centre of gravity 'G' and M.

$$\text{Cos}\tilde{\psi}_i = (\tilde{OG}.e_i) / OG (i = 1,2,3) \quad (15)$$

and $\text{diag}((\tilde{d}_I, \tilde{d}_{II}, \tilde{d}_{III}))$ - diagonal matrix of order 3.

5. BIO-ACOUSTICAL MODELS

Performing acoustics through Tabla may be realised as an animal model belonging to theoretical cybernetics (Majumdar 1979). Hence, a bio-acoustical-model (BAM) for Tabla playing may be jointly represented by a BIO-MATRIX-MODEL (BMM) and a SYSTEM-THEORETIC-ACOUSTICAL-MODEL (STAM) describing bio-characteristic features of a drumming. Regarding kinetics of the hands and their associated parts, the models BMM and STAM may be represented by the bio-matrix BIO (I,J,K) and the system theoretic function ACOUS (melody, tone, stress, grace) respectively, where 'I' identifies a particular component of Tabla, 'J' identifies a particular state of a finger/wrist/arm relative to I, and K identifies a bio-characteristic element of drumming relative to I.

Hence, the bio-characteristics of a drumming may be identified by means of the following tables.

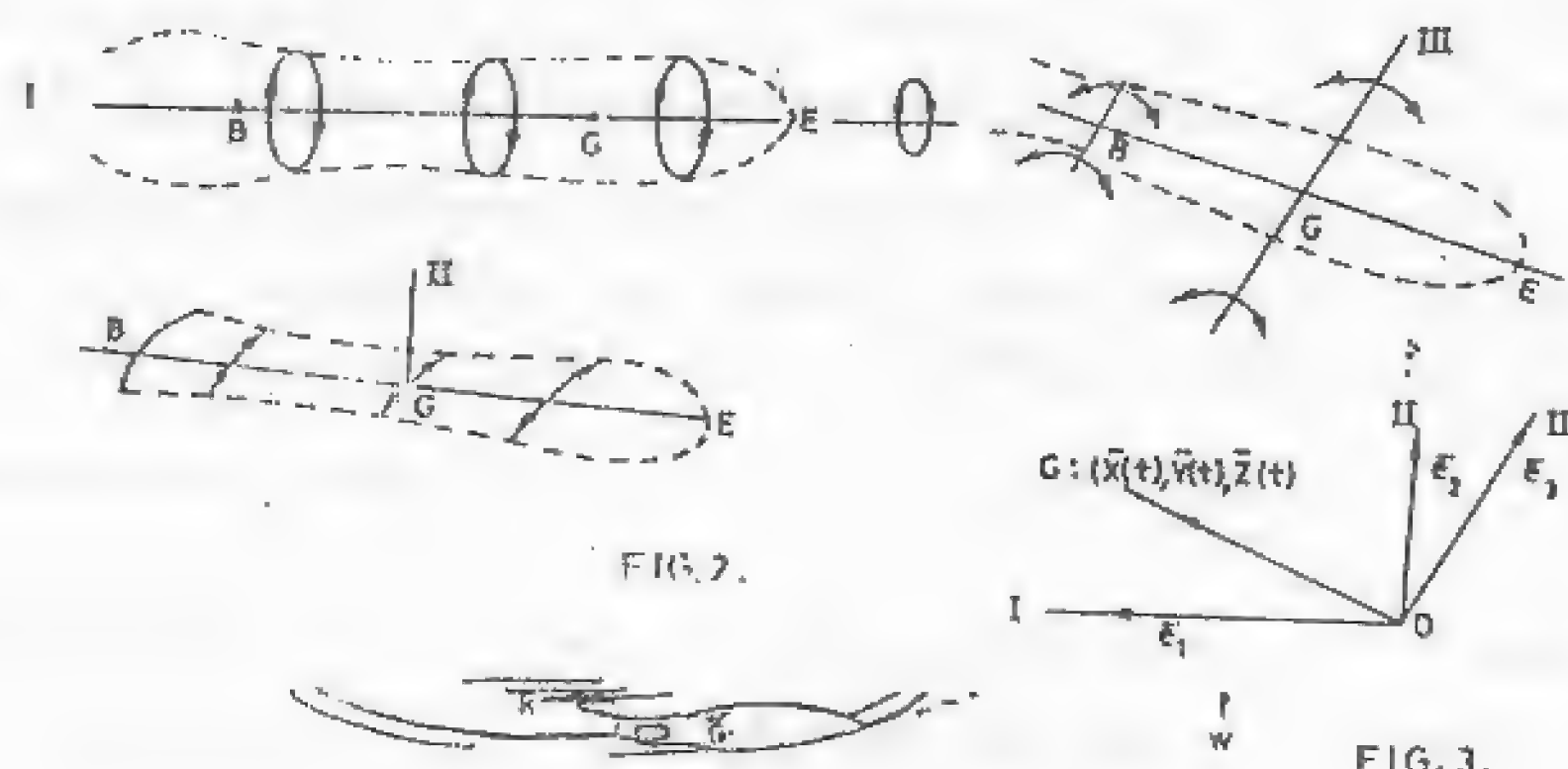


Table 1

BIO (I,J,K) : Dāhina

K\J	1	2	3	4	5	6	7	8	9
1	T_G	T_{G1}	T_F	T_{G2}	T_{G3}	T_{G4}	T_G	T_B	T_G
2	TR(G)	TR(G1)	TR(F)	TR(G2)	TR(G3)	TR(G4)	TR(G)	TR(B)	TR(G)
3	RO(G)	RO(G1)	RO(F)	RO(G2)	RO(G3)	RO(G4)	RO(G)	RO(B)	RO(G)
4	PE(G)	PE(G1)	PE(F)	PE(G2)	PE(G3)	PE(G4)	PE(G)	PE(B)	PE(G)

Table 2

BIO (2,J,K) : Banya

K\J	1	2	3	4	5	6	7
1	$T_{G1'}$	T_C	$T_{G'}$	$T(G'2)$	$TG'3$	$TG'4$	$T_{G'5}$
2	TR(G'_1)	TR(C)	TR(G')	TR($G'2$)	TR($G'3$)	TR($G'4$)	TR($G'5$)
3	RO(G'_1)	RO(C)	RO(G')	RO($G'2$)	RO($G'3$)	RO($G'4$)	RO($G'5$)
4	PE(G'_1)	PE(C)	PE(G')	PE($G'2$)	PE($G'3$)	PE($G'4$)	PE($G'5$)

5.1 DRUMMING ON PAKHAVAJ AND MIRIDANGAM

Bio-acoustical-models for Tabla playing are suitable for identifying various of drumming on Pakhā vaj and Mridangam. Force of gravity favours a little towards the acts of drumming on Pakhavaj and Mridangam, causing good amount of muscular exertion for playing on these drums. However, regorous practices of playing on the said drums helps to develop the acts of drumming on Tabla.

SUMMARY AND CONCLUSION

The present paper furnishes a cybernetical study concerning the acoustics of sound in Indian drumming. The present investigation is limited to bio-acoustical aspects of drumming associated with the most popular Indian drums Tabla, Pakhā vaj and Mridangam. An accoustical beauty in drumming results due to (a) finer audio-visual-sense (b) finer sense of timing and (c) aesthetic creations.

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"Saint Thyagaraja, Purandara, Dikshithar, Syama Sastry, and Swati Thirunal have by their own life of renunciation and devotion freed themselves from all taints of worldliness and attained Atma-Sak-Shatkara. it is the foremost duty of all musicians and institutions interested in the promotion of music to preserve this grand ideal and this pristine purity belongs to music."

- Swami Sivananda.

*There's Music in the sighing of a reed;
There's Music in the gushing of a rill;
There's Music in ALL things, if men have ears;
Their Earth is but an echo of the Sphere.*

- Byron

SYSTEM THEORETIC MOTIVATION, ATTRIBUTES AND BEHAVIOURS OF RAGA AND TALA SYSTEMS OF INDIA

(a cybernetical approach)

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K.N.Bhowmick

*Department of Applied Mathematics
Institute of Technology, Banaras Hindu University,
Varanasi, 221 005, India.*

ABSTRACT

Indian classical music (or SANGEETA) is constituted by three disciplines by the names of GEETA (vocal music), VAADYA (Instrumental music) and NRITYA (Art of dancing). Raga and Tala systems of India belong to GEETA and VAADYA respectively. Art of dancing was evolved by the dramatic acts of day events of our life. These three disciplines of music are inseparable for the complete development of SANGITA. The object of the present paper is to determine certain system theoretic functions for the Raaga and Taala systems of India in the light of the features (a) computability and (b) Mathematical modelling associated with theoretical cybernetics.

INTRODUCTION

A problem of fundamental importance in nature, man, society and machines is to develop a general theory of physical systems. System Theoretic motivation provides an attempt to develop an unified science for improving our understanding of the natural and social phenomena. It has been observed earlier [1] that Cybernetics (C) and General Systems (GS) may act together to form a 'Unitary science' which encompass almost every discipline of system science today. General musical systems (GMS) of India, in particular, were evolved due to social transformations over the centuries in India right from the period of 'Aryans' upto the rein of mughal rulers. GMS is constituted by three disciplines by the names of GEETA, VAADYA and NRITYA according to Gandharavas. The most important requirement of GMS happens to be the determination of general mathematical models for encompassing different types of already existing theories in Hindustani system of Ragas and Talas of north India.

The task of a general theoretician begins after the general system is expressed in it's explicit form $R[X_1, X_2, \dots, X_n]$. A propositional function $L(X)$ may be constructed with the individual variable 'X' ranging over the cartesian set $X_1 * X_2 * \dots * X_n$. If a proposition $L(X_j) = L_j$ is true whenever $X_j \in X$ for a positive integer $s \leq n$ then L_j defines an attribute of

the system $B = (L_1, L_2, \dots, L_n)$. Regarding GMS, one can identify system theoretic function $S[X_1, X_2, X_3]$ where $X_1 = \text{GEETA}$, $X_2 = \text{VAADYA}$ AND $X_3 = \text{NRITYA}$ as mentioned earlier. As such, 'S' may be designated as SANGEETHA (or music). It may be further added that X_1 is represented by a Raaga, X_2 is constituted by the music emanating from TAT (stringed instrument), GHAN (cymbel), SUSHIRA (blowing instrument) and AVANADHYA (percussion/drum), and X_3 is intimately related to X_1 and X_2 . An attribute of GMS is said to exist whenever a proposition $L(x_j)$ associated with Raaga or Taala, is gramatically true for $X_j \in \times s$ ($S \leq 3$). A raaga is created by systematic presentation of various characteristics and features associated with internationally known musical notes Do', Ré, Mi, Pha, So, La, Ti. The corresponding Indian names of these notes Saa, Ré, Ga, Ma, Pa, Dha, Ni. A tala is defined by an ordered timing structure of fixed period. In the present paper, an attempt has been made to highlight certain system theoretic functions for Hindustani Raagas and Taalas of North India.

COMPUTABILITY OF HINDUSTRANI RAGAS

An octave creates a basic element THAATA, and a Raaga is created by a thata [2]. Ten thatas are known to exist by the names of VILAVALA (V), KHALYAANA (K1), KHAMAJA (K2) ASHAAVARI (A), KAAFI (K3), BHAIRAVI (B1) BHAIRAV (B2), MARVA (M), PURIA (P) and TODI (T). Regarding the formation of a Raaga one is led to find an ordered pair of ascending and descending notes chosen out of the triple (AUDHAVA, SADABHA, SAMPURNA) where Audhav, Sadabha and Sampurna stand for certain combinations of five, six and seven notes respectively. Consequently, a combinational sum of nine ($3^2 - 9$) pairs of ascending and descending notes may be determined by means of the following table:

TABLE - 1

Types	Sampurna	Sadabha	Audhava
Sampurna	C1	C2	C3
Sadabha	C4	C5	C6
Audhava	C7	C8	C9

As a rule, the first note Saa should occur in both ascending and descending pairs of notes C_j ($j = 1$ to 9) furnishing the values:

$$C_1 : 1, C_2 : \left(\frac{6}{5}\right) = 6, C_3 : \left(\frac{6}{4}\right) = 15, C_4 : \left(\frac{6}{5}\right) = 6, C_5 : \left(\frac{6}{5}\right)\left(\frac{6}{5}\right) = 36, C_6 : \left(\frac{6}{5}\right)\left(\frac{6}{2}\right) = 90, C_7 : \left(\frac{6}{2}\right) = 15, C_8 : \left(\frac{6}{5}\right)\left(\frac{6}{2}\right) = 90 \text{ and } C_9 : \left(\frac{6}{2}\right)\left(\frac{6}{2}\right) = 225.$$

Hence, the total number of Raagas per a thata may be computed as $\sum_{j=1}^9 C_j = 484$.

RAGA MATRIX

By virtue of the formation of 484 Raagas per a thata one can identify a particular Raaga in a row of the matrix ((C (I, I))) of order (225 X 9) against C_j ($j = 1$ to 9).

KNOWLEDGE BASED INFORMATIONS ABOUT HINDUSTAANI RAAGAS AND TAALAS

Apart from the computation of Hindustani Raagas it is very essential to know about the characteristics and features of a Raga for complete representation of Hindustani Raaga system. Following the texts Sangiitha Ratnaker [3] and Sangiita Shaastra Parag [4] one can precisely represent a Hindustani Raaga by means of the following system theoretic functions:

$$R(S1, G, S2, A1, P1, A2, N1, T1) \\ \text{and} \quad S3(DP, KL, T3, T3KL, TH, DR, CH, KAJ),$$

where S1 = Srooti/tonal dimension.

G = Graama/tonal scale, S2 = Sargam/ combination of notes, A1 = Alankaara/ ornamentation, P1 = Pakada/apprehension, A2 = Alaapa/Introduction, N1 = Natural language system, T1 = Taala systems, DP = Dhruvapada/Dhrupada/eternal truth, KL = Khayla/Imagination, T3 = Tappaa (a classical folk of Punjab), T3KL = Tappa Khayaala (Blending of Tappaa and Khayla). TH = Thumari (a light classical music, with an expression of romance with dancing postures), DR = Daadra (a light classical music based on Dadra tala), CH = Chaiti (a light classical song associated with spring season), KAJ = Kajari (a light classical song associated with rainy season).

MATHEMATICAL MODELS FOR 'R' AND 'S3'

S1 : A srooti may be defined as a tonal dimension of a certain musical note belonging to an octave. If an octave is formed on a standard metallic wire between Saa (lower) to Saa (Upper) then the frequencies of these notes would bear a simple ratio 2 : 1. Now, dividing the octave in 22 parts in geometrical progression one can arrive at the value $r = \sqrt[22]{2} = 1.032$ of the common ratio of the said progression. As such, 'r' may be defined as the tonal unit of the said octave. Now, using the value of 'r' one can locate twenty two srootis on the aforesaid metallic wire as per following specifications : Saa (lower) : 1.000, $r = 1.032$, $r^2 = 1.065$, $r^3 = 1.099$, $r^4 = 1.134$, $r^5 = 1.170$, $r^6 = 1.208$, $r^7 = 1.246$, $r^8 =$

$= 1.286$, $r^9 = 1.327$, $r^{10} = 1.370$, $r^{11} = 1.414$, $r^{12} = 1.459$, $r^{13} = 1.506$, $r^{14} = 1.554$, $r^{15} = 1.604$, $r^{16} = 1.655$, $r^{17} = 1.708$, $r^{18} = 1.763$, $r^{19} = 1.819$, $r^{20} = 1.877$, $r^{21} = 1.937$ and Saa (upper) : 2.000.

G : A grama may be defined as a tonal scale which assigns dimensions to the musical notes of an octave (or Saptak) on the basis of the measures of 22 srootis. Three gramas are known to exist by the names of SHADAJA, MADHYAMA and GAANDHAARA. Distribution of srootis for a particular musical note constitutes tonal dimension of the note.

A2 : It is a system theoretic function A2 (X1, X2, -X10) constituted by the elements X1 = Vadi (Sonant note), X2 = Sama- vadi (consonant note), X3 = Arunvadi (Remaining notes), X4 = Vivadii (Dissonant note), X5 Nyasa (stationary), X6 = Mida (movement from one note to other without touching the intermediate notes). X7 = gamak, X8 = Murchaana, X9 = Tana and X10 = Duration.

X7: It is characterised by fifteen features $G_l(I)$ ($I=1$ to 15) of dynamic actions concerning the display of certain notes of Raaga.

X8: Murchanaa is associated with $G \times S1$. It may be presented by the circulant matrix $((M(I,J,K)))$ of order 7, where I, J, K stand for respective indices for Murchaana, musical note and Graama, assuming the values $I, J \equiv 1$ to 7 and $K \equiv 1$ to 3. The matrix element $M(I, J, K)$ stand for tonal dimension for J^{th} note corresponding to I^{th} murchanaa and K^{th} graama.

X9: A tana may be defined as a pure murchanaa $M(I,J,K)$ for a fixed K (1 to 3) subject to the limitation of five or six values of 'J' per a single value of I . As such, a tana of L^{th} serial order may be denoted as $T(I,L,K)$.

X10: A Raaga is presented during the interval 12.00 p.m. to 12.00 a.m. whenever the Vaadhi note of the Raaga happens to be one of the notes Saa, Re, Ga, Ma, Pa. A Raaga is presented during the interval 12.00 a.m. to 12.00 p.m. whenever the Vaadhi note happens to be one of the notes Ma, Pa, Dha, Nii.

N1: Natural language system plays important role for the development of Raga system. Regarding the literary development of S3 the languages like Sanskrit, Hindi, Braja, Urdu, Punjabi & Persian are extensively used. These languages may be synthesized by using computer software.

11: A tala may be realised as a system theoretic function [5].

$$TAL(E1, E2, \dots, E10)$$

Constituted by ten basic elements EJ ($J=1$ to 10). $E10$ may be further represented by the system theoretic function $E10(P1, P2, \dots, P19)$, where $P1 \equiv$ Moharaa, $P2 \equiv$ Mukhdaa, $P3 \equiv$ Uthaana, $P4 \equiv$ Paraala, $P5 \equiv$ Peskaara, $P6 \equiv$ Baanta, $P7 \equiv$ Kaaidaa, $P8 \equiv$ Relaa, $P9 \equiv$ Chalan, $P10 \equiv$ Gat, $P11 \equiv$ Gat-Kaida, $P12 \equiv$ Fard, $P13 \equiv$ Thekaa, $P14 \equiv$ Laggii, $P15 \equiv$ Paran, $P16 \equiv$ Gat-Paran, $P17 \equiv$ Kabitta, $P18 \equiv$ Tihal and $P19 \equiv$ Chakradaara are standard names of the compositions displayed on Tablla and Pakhavaaj.

The components DP and KL of S3 may be further represented by the system theoretic functions

$$DP(A1, A2, SN, A3, VAANII)$$

$$\text{and } KL(A1, A2, TANA, SCHOOL),$$

where the components $A1, A2, SN, A3$ stand for the standard terms Asthaall, Antaraa, Sanchaarii and Abhoga, TAANA is associated with $T(I,L,K)$, and VAANII or SCHOOL represents a style of presentation of DP or KL.

ATTRIBUTES OF R AND S 3

An attribute of Raaga may be realised as a valid proposition $L(x_j)$ of music whenever $X_j \in X$ s for positive interger $S \leq 8$, where $X1 \equiv S1$, $X2 \equiv g$, $X3 \equiv S2$, $X4 \equiv A1$, $X5 \equiv P1$, $X6 \equiv A2$, $X7 \equiv N1$, and $X8 \equiv T1$ for the function R, and $X1 \equiv DP$, $X2 \equiv KL$, $X3 \equiv T3$, $X4 \equiv T3KL$, $X5 \equiv TH$, $X6 \equiv DR$, $X7 \equiv CH$ and $X8 \equiv KAJ$ for the function S3.

Regarding the attributes of 'R' and 'A2' one can identify the following propositions :

1. $L(X_j) \equiv G_1(I)$ may be regarded as the attributes of R for $I = 1$ to 6, 8, 10, 14 with the addition that $G_1(6)$ or $G_1(10)$ & $R \in A_2 \in G_1(1)$, where $x_j \in S_1 \times G \times S_2$,
2. $L(X_j) \equiv G_1(I)$ may be regarded as the attributes of $R \in A_2$ for $I = 7, 9, 11, 12, 15$,

where $x_j \in S_1 \times G \times S_2$ and $S_2 \subset \bigcup_{i=1}^3 O(i) \subset M(I, J, K)$ for $G_1(7)$ and $G_1(8)$,

$O(1), O(2)$ and $O(3)$ being lower, middle and upper octaves, respectively,

Moreover, $S_2 \supset$ Vivaadii note & A_2 for $G_1(9)$,

$G_1(11)$ is associated with $S_2 \times X_{10}$,

$G_1(12)$ is associated with $S_2 \times O(1) \times O(2)$, where $O(1)$ and $O(2) \in M(I, J, K)$

$\subset A_2$, and $G_1(15)$ ranges through set $[G_1(7), X G_1(9) \times G_1(11) \times G_1(12)]$

BEHAVIOURS OF R AND S3

System behaviour of 'R' or S_3 may be specified by studying the intrinsic natures of the components of the said system theoretic functions as follows

DP : Beauties of nature X Devotion to deities X Festivals X Philosophical aspects X Praise words for kings

KL : Romantic verses X Love X Devotion X Praise words for Kings and elites.

SUMMARY AND CONCLUSION

The present paper highlights the system theoretic functions, R, S_3 , A_2 , TAL, E10, DP and KL for Raaga and Taala systems of India. The object of the present work is to develop computer software for R and S_3 in near future.

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AESTHETIC VALUES AND DEFINITIONS OF THE TRADITIONAL 'BANDISHAS' OF THE TABLA

Pandit Arivand Mulgaonakar

The role of Tabla in the field of music :-

Shri Waman Shivram Apte, in his Sanskrit - English Dictionary, defines "Music" as follows:-

"गीतं वाद्यं नर्तनं च लयं संगीतमुच्यते" - meaning thereby that the trinity comprising vocal recital, instrumental music and dance is together called Music. "Shruti" forms the basis of both vocal as well as instrumental music, while dance is basically an audio-visual form of performing art. The gestures, the verse and artistic movement or style using symbols to express ideas or emotions - all these invariably lend to choreography an enchanting view and an audio experience with sublime note. Amongst all the "Awanaddha" instruments so far invented by mankind, Pakhawaj and Tabla are the most advanced ones. These instruments have an identity of their own, in the form of language, which is sound-oriented (onomatopoeic), with script and grammar. However, it is merely based on "Layanga". A Tabla maestro can effortlessly reproduce 4 to 5 "Shrutis" on the instrument, by suitably adjusting the Bayān by "Daab - gāz", by virtue of his knowledge of "Swara". But it happens quite rarely! It is only on "Tabla Tarang" with the right combination of various notes, that a particular "Raga" can manifest itself.

A Tabla or Pakhawaj maestro has a Herculean task to accomplish. In spite of formidable obstacles such as the absence of lyric poem, 'Shrutis' and choreographic gestures, he can hold the audience spell-bound for hours together with a variety of nuances of mere 'Layanga'. The nature has given man this uncanny gift of "Laya perception" right from his birth. Later on, as he grows, he acquires the 'Sanskars' or associations of 'Swara' and language. Lullabies, nursery rhymes, poems, film music etc., more than "Laya-Tala" instruments are responsible for moulding his musical perceptions from the childhood itself. Which is why, a Tabla/Pakhawaj player can perceive the Solo performance far more better than a vocalist, string instrumentalist, flautist or a layman. Of course, latter can enjoy the accompaniment of the Tabla or Pakhawaj.

There are two main forms in Tabla Bandish.

- (1) Pre-composed and worthy of spontaneous evolution e.g. 'Uthan', 'Upaj', 'Amad', 'Peshkar', 'Farshbandi', 'Kayada', 'Rela', etc.
- (2) Pre-composed, but non-evolutionary e.g. 'Gat', 'Gat-Tukda', 'Gatparan', 'Chakradar' etc., the exception being 'Gat-Kayada', 'Gat-ang Rela', etc., which are associated with 'Kayada' and 'Rela' mentioned in para No.(1) above.

This paper mainly deals with the definitions of 'Gat', 'Gat-Kayada', 'Gat-ang Rela' and 'Gat-tukda', which I will try to explain in finer details. During the process, I shall recite a selected "Bandishas" pointing out their aesthetic values.

"Gat" :- This forms an important feature of Solo Tabla Performance, in as much as, it not only highlights the composer's skill, but also the creative ability, intuition, innovative ideas, and last but not the least, the artist's command on the instrument and 'Laya'. Any composition of Tabla, especially the form of 'Gat', cannot reach the height of professional excellence, unless the composer is himself a skilled artist. Because it is very necessary that the composer should properly co-ordinate and integrate the "Bol-panktis" or phrases of the 'Bandish' with the sequence of the fingers on the Tabla and Bayan. Today, if we carefully listen to the old traditional 'Bandishas', we can easily assess the erstwhile Master composer's standard of excellence, intuition and innovation.

The old 'Kayadas', 'Relas' and 'Tukdas' are still in vogue, however, the names of their composers are unfortunately unknown. But this is not the case with "Bandishas" such as 'Gats', 'Gat-ang Rela', 'Gat-paran', 'Gat-Tukda' etc. These "Bandishas" are somewhat complicated. However, due to the appropriate usage of the 'Bols' emanating from "Layabandh", these "Bandishas" have found a pride of place as "Poems".

All Ustads and Pandits in good old days used to classify these under "Poetry", or "Kavitas". This explains why their traditional compositions, along with their names, still exist. It is but natural, therefore, that the Tabla maestros while presenting such "Bandishas" of their masters, should touch their ears, as a mark of respect to the fond memory of these great composers. I, personally feel that this pre-composed non-extendable "Bandish" in Tabla Solo performance, is superior to all other forms, because it distinctly reflects the composer's creative ability and intuitive faculty. In this context, two verses of Sharangdev are worth mentioning :-

“कवि कवयनि क्षोकं क्षवणोन्सवदैः पदैः
यथा नथा क्वचित्तालैर्वर्णप्रथमनोहरानू ।। 1036 ।।
विधाय वादको वाद्यप्रबन्धमर्हनि
इमं कविनकाराख्यं वादकं ब्रुवने जना ।। 903 ।।”

These can be broadly translated as follows:-

Just as an inspired genius composes beautiful verses, with words blended with both harmony and melody, similarly, a "Tala-vadak" composes "Bandish" of high literary value, qualifying himself as a gifted "Poet".

"Gats", "Gat-ang Relas", "Gat-tukdas", "Gat-parans" and "Chakradars" have immense importance in the solo performance of the Tabla. Just as "Khyala" composition cannot be considered complete in the absence of "Antara", similarly no Tabla solo performance is said to be complete without these "Bandishas".

Etymologically, the term "Gat" is derived from the word "Gati" (speed or movement). Man perceives the element of "speed" or "movement" through various natural phenomena or incidents of everyday life. For instance, graceful steps of a peacock, his ecstatic dance at the sight of dark, monsoon clouds, the flight of an eagle at dizzy heights, the serpentine movement of a reptile, waterfall pouring down a cliff, current

quietly flowing on a plane or a river in spate, playfull movements of kids, or spring like action of a bouncing ball - all these are but mundane examples of "speed" and "movement" perception.

"Speed" or "movement" becomes evident due to manifestation of repeat actions. This explains why "Gat" ends before the "Sam".

"Gat" when repeatedly played, makes its movement evident (distinct). "Gat" is primarily full of heavy "Bols", as compared to light "Bols".

Definition of "Gat" :-

"Gat" can be defined as a "Bandish" i.e. a pattern of movement capable of infinite repetition.

Salient features of "Gat" :-

"Gat" normally terminates with consonant or a light "Bol" before the "Sam". This rule, however, has an exception, where "Gat" can also end with 'Vowel'.

There is a misconception that "gat" is devoid of "Tihai". Actually, 'Tihai' may exist in "Gat" also, but in such case, it necessarily ends before the "sam". Alternatively, the final alphabet of the 'Sam' and that of the 'Tihai' happen to be one and the same. Cycling (repetition) is necessary to make the movement ("chaal") clear, and therefore, termination of the composition before the "Sam" becomes inevitable.

The same is also based on metre of a poem. All "yatis", "Jaatis" and "Grahas" as described in 'Tala Shastra' are employed freely in this "Bandish". "Bola-samoocha" or a phrase of alphabets of a 'Rela' is also used at the end of a Gat".

'Kathak' choreography may have exerted potential influence on the composition of "Gat". This is the reason why its innumerable compositions find place among various Tabla "Gharanas" viz. Lucknow, Benaras, Farrukhabad and Punjab. Artists from Delhi Gharana also have composed "Gats" but those are relatively less in number.

Various special forms of "Gat" which I know, are sixteen, and the same are given below along with examples of each :-

- | | |
|--------------------|--------------------------|
| 1. 'Seedhi Gat' | 9. 'Khand Gat' |
| 2. 'Rela Gat' | 10. 'Dudhari Gat' |
| 3. 'Manzdhar Gat' | 11. 'Tidhari Gat' |
| 4. 'Tihai Gat' | 12. 'Choudhari Gat' |
| 5. 'Tipalli Gat' | 13. 'Panjdhari Gat' |
| 6. 'Doomoo ki Gat' | 14. 'Gend Uchaal Gat' |
| 7. 'Fard Gat' | 15. Chhand Gat' |
| 8. 'Mishra Gat' | 16. 'Tilai Manjedar Gat' |

Now let us examine each 'Gat' of every type :-

1. 'Seedhi Gat' - composer - U. Haji Vilayat Ali Khan

Tā dhā Ghidnagtak Ghinagtakdhā Ghidnagtak
Ghidnagtakdhā - ddhā ghidnag Takdhā ddhā Dingdina
Kttkting Tinā kittak Tirkittakta Kattinkidnag
Ghidnagtak - ddhaghidnag Takdhā -ddha Dingdina.

The first and the last alphabet viz. 'Tā' and 'Nā' of this 'Gat' is a vowel. It is initially played in medium pace and doubled. The composition being simple, this 'Gat' is called "Seedhi Gat". These are always composed in 'Chaturasra Jā ti'.

2. "Rela Gat - composer - U. Amir Hussain Khan

A tihai consisting of a 'Rela is incorporated in the concluding part of this 'Gat'.
Dhinghidā -ndhin Ghidā -nanagtak Dhinghidnagding
Dinakatatā - Takteentakkā Kidnagatinakina
Tagetrakatunakatā (Tintirkittaktintirkittak
Tatirkiltakdhintirghitag Dhintirghittagdhatarirghittag)x 3

3. "Manzdhar Gat" - Composer - U. Imam Bux Choodiyanwale

As the very name suggests, this is like a current. A river on the plane flows smoothly. But the same river on the rocky, mountaineous terrain, runs up and down, vigourously. It is the irratic, uneven pace of such a river, that reflects in this 'Gat'.

Ghdā nghitak Taketirkittak Takitadhā Trakadhindhā-
Kā -tdhā Dhindhakat Dhiradhira Kitataka Tā getira
Kitataka Dhirdhirkā -t Dhirkittak Taketirkittak
Tagetita Dhintā kittak Tagetitkata-n

4. "Tihai Gat" :-

There are numerous varieties of this "Gat", important amongst which are -

- a) 'Seedhi or Barabari Gat'
- b) 'Akal or Anaghat Gat' and
- c) 'Sab Akal Gat'.

a) 'Seedhi or Barabari Gat' :-

This starts with a steady pace and ends with three lines of "Bolasamoocha". For instance, a 'Gat' composed by Ustad Rehman Khan - Indorewale :-

Dhatrakadhikita Katagadigana Dhā - Katagadigana
Dhatrakadhikita Katagadigana Takdhintak Dindinā -

Dhirdhirkittak Taktdhā - Dhirdhirkittak Taktdha -
 Taktdhā - Taktdhā - Dhattrakadhikita Katagadiganā
 Dha-takt Dha-dhattrak Dhikitakataga Deeganadha -
 Taktdha - Dhattrakadhikita Katagadigana Dha-takt | Dhā

This is an exceptional example of a 'Tihai Gat' which ends on the 'Sam', but still can be repeated to perceive the movement. This is due to the appropriate use of the alphabet "DHA" of the Tihai which falls on the "Sam". This "Gat" is played in medium peace and doubled.

b) 'Akā l or Anā ghat Gat :-

Here, the 'Tihai' begins without an alphabet but just an "Awagraha" indicating stress in each of the three lines. For example, see this 'Akā l' Tihai composed by Ustad Amir Hussain Khan :-

Takita Dhikitā Dhakittak Dhadhinta
 Kittakdhin Tā kittak Dhintakit Dhā dhitā
 Kattitatita Ketrakadhikita Katagadigana Tā tintā
 - Kit Taktirkita Dhā -ddhā Dhā -dhintā
 - Kit Taktirkita Dhā -ddhā Dhā -dhintā
 - Kit Taktirkita Dhā -ddhā Dhā -dhintā

c) 'Sab Akā l' (Anaghat) Gat :-

In this 'Gat' all the spots of clapping, although un-pronounced and devoid of stress, do indicate force clearly. For instance, see 'Gat' in 'Mishra Jati' composed by Ustad Amir Hussain Khan :-

- Dhā genadhā getita - Kdadhātita - Dhithadha genadhā
 - Dhagenakat - Dhā genadhin - Dhā gentin
 - Dhā tirkithatirkittak - Tirkittakdhirdhirkat

5. "Tipalli Gat"

This is played at three different stages, the "Bols" being common for all. However, the first stage starts with a medium pace, which is increased $1\frac{1}{2}$ times in the second stage, while the final stage is marked by doubling the first one. For instance,

Dingadinga Takitatakita Dhā trakadhikita
 Katagadeegana
 Dhā trakadhikitakata Goddeenganatak
 Dingdingitakitatakita Dhā trakadhikitakatagadigana |
 Dhā

6. "Doomooki Gat" :-

As the term implies, this 'Gat' has two "mouths". Actually it is 'Do Muh Ki Gat'. The name is derived from the fact that it has the same 'bols' (words) common in the first and the last line. This 'Gat' is commonly confused with "Doodhari Gat", although their

structure is entirely different. An example of "Doomoo Ki Gat" is given below :-

Dhadannā kita Dhā -ghidnag Dingnagdhirdhir Kittaktaktdha -
Dhadannā kita Dhā -ghidnag Dingnanakata Tā -
Takteentak Tā -kidanag Tinakinatage Trakatunā katā
Dhadannā kita Dhā -ghidnag Dingnagdhirdhir Kittaktā ktdhā -

Here, you will find that the group of words is common in the first and the last line.

7. "Fard Gat" ("Ekkad Gat") :-

The term is derived from Arabic word 'Fard' meaning unique, (or inimitable) or superb. 'Ekkad' is a Hindi word having the same meaning. According to Ustad Amir Hussain Khan, the 'Gat' for which to compose a "Jabā b" or "Joda" is very difficult, is the 'Fard Gat'. He says that the last alphabet "Dhā" is not only unexpected, but also potentially forceful, with the result, this 'Gat' even when played once, produces a good impact on the mind of the audience. This may be one of the reasons, why the 'Fard Gat' is traditionally so popular. Following a 'Fard Gat' of legendary Ustad Miyan Imam Bux Choodiyawale of Farrukhabad Gharana :-

Dhirdhirkat Dhirdhirkat Dhitadhita Dhā getita
Kdadhā kadhi Kitadha - Kitataka Takitata
Katitadhā Dhindhadhat Tagenna Dhā —
Gadgin — Gad Ginn Gadgin
Kitataka Dhetta - Dhakittak Tā dhet
Tagenna Dhagetita Dingnana
Kittakdingd | Dhā

8. "Mishra Gat" :-

These are composed 14 'matras' and have a mixture of 3 and 4 word groups such as 1,2,3 and 4,5,6,7. Hence, they are called 'Gats' of 'Mishra' Jaati. e.g.

Katak Dhitadhita Dingna Takding
Dingna Takdhage Tingna Nā -Kittkak
Tirkittak Dhirdhirkittak Dhā -tta
Dhā - -tta Dhā - -tta Dhā —

9. "Khanda Gat" :-

This 'Gat' is composed in alphabet groups of five and ten to have 'Khanda Jā ti' :-

Dhinatakita Takitadhita Takatakta Dhinatā kita
Takatakata Dhinatā kita Takatakta Dhinatā kita
Dhagetitkatgadigan Dhinatā kita Takatakata Dhinatakita
Dhagetitkatgadigan Dhinatā kita Takatakata Dhinatakita
Dhinatā kita Takatakata Dhā getitkatgadigan Takitadhina
Dhā getitkatgadigan Takitadhina Dhā getitkatgadigan
Takitadhina

10. "Dudhari Gat" :-

Composition in series of a pair of words in combination, gives a melodious sound effect. The 'Gat' is composed by Ustad Haji Vilayat Ali Khan :-

Dhinghid ā -na Dhinghid ā -na
Dh ā genagdhin Dh ā genagdhin
Dh ā trakadhikita Dh ā trakadhikita
Ghinaktee-n Ghinaktee-n
Nakkitatak Nakkitatak
Dhadannakittak Dhadannakittak
Dh ā dh ā ghina Dh ā dh ā ghidnag
Tirkittakdhirkittak Tirkittakdhirkittak

The secret of beauty of this Bandish lies in the innovation employed by an intelligent placement of the pair of words. Close analysis will reveal that although the Gat is composed in 'Tryasra Jā ti' only for 11th and 12th 'Mā tras' 'Chaturasra Jati' has been used. Similarly, by using an altogether different phrase at the end the composer holds a listener spell-bound in awe and admiration.

11. 'Tidhari Gat' :-

Trinity, as the name suggests, is the essence of this composition, where there are group of three identical words each clubbed together. Here is an example of 'Tidhari gat' composed by Ustad Modhu Khan - younger brother of Ustad Miyan Baxooji.

Dhinghidnag Dhinghidnag Dhinghidnag Taktaktak
Takdhintak Dhintakdhin Dhirdhirkatdhirdhir
Katdhirdhirkat Dhiradhiradhira Tiratiratira
Dhirdhirkittaktatir Kittaktatirkittak
Dhirdhirkittaktatir Kittaktatirkittak
Dhirdhirkittaktatir Kittaktatirkittak

12. "Choudhari Gat" :-

A classic example of "Chaudh ā ri Gat" is the one composed by Ustad Amir Hussain Khan :-

Takitadhikita Takitadhikita Takitadhikita Takitadhikita
Dhinadhinadhina Dhinadhinadhina Dhinadhinadhina Dhinadhinadhina
Naganadeegana Naganadeegana Naganadeegana Naganadeegana
Takdhintirkittak Takdhintirkittak Takdhintirkittak Takdhintirkittak
Takitatikita Takitatikita Takitatikita Takitatikita

Beauty of this 'Gat' lies in a judicious combination of delicate, soft sounding words on the one hand, and forceful loud sounding words on the other, produced by remarkable co-ordination of the fingers. For instance, the group of words "Takitadhikita" and

"Takitatikita" are required to be produced forcefully, while the line starting with "Dhinadhinadhina" is relatively soft and pleasing to the ear, because of the "Ghumak". The line commencing with "Nagandeegana" produces a delicate sound, while the one starting from "Takdhintirkittak" with force on "Tak" coupled with seven alphabets viz. "Dhintirkittak" emits a humming sound of "Rela". Ustad Amir Hussain Khan who was a left-handed artist, used to produce "Ghumak" from the word "Dhinadhinadhina" with such a tremendous force, that the wooden stage used to make a rattling noise.

13. "Panjdhari Gat" :-

This is played with a group of 5 words, as seen in the "Gat" composed by Ustad Sher Khan - Uncle of Ustad Ahmedjan Thirakhwa :-

Dheenkdadhin Takittak Tirikittak Takkd ā -n
 Dh ā -dhinn ā Kittakt ā n Dh ā --
 - Dhatir Kittaktakt Dhatirkittak
 Taktdh ā tir Kittaktakt Dh ā tirkittak
 Taktdhatir Kittaktakt | Dh ā

14. "Gend Uchhal Gat" :-

This is based on the action and the sound produced by the bouncing of a ball. I would like to present a beautiful composition authored by Ustad Haji Vilayat Ali Khan :-

Dhagattakt Dhatirkittak Tetdhirdhir Kittaktakt
 Dheen- -Takteen- -Teen - Teen - Nn ā - -Nn ā -
 - N ā ge Tirakita Gaddeen - Gheena Dh ā -ge
 Teeta Ghinn ā - -Kata Gaddeen -Kata Dh ā -gena
 Dh ā traka Dhin ā ga Deegana Takkd ā n Tintin
 Nagananagana Nagatirakita Dhagattakita
 Dhatirkittak Tetdhirdhir Kittaktakt
 Dha

An off-beat sound produced by

"Dheen- -Takteen- -Teen - Teen - Nna - Nna -"

brings to memory the bouncing action of a ball, while the line -

"Takkd ā n Tintin Nagananagana Nagatirakita" reflects the action of a ball going up high and then gently rolling down the floor. Inherent qualities being the same, this "Gat" is also called "Fard Gat".

I may present one more example of "Gend uchhal Gat" composed by Ustad Muneer Khan :-

Dh ā kittak Takdhin- -Tak Takdhin
 Taktaktak Tirkittak Tirkittak Takdhin-
 Taktaktin Taktak Tin-tir Tirkittak
 Dhirdhirkit Takdhin- Takdhin- Takdhin

This "Gat" is skillfully composed in "Tryasra Jati" and the words "Taktaktak" and "Takdhin - Takdhin-" the latter with its nasal sound, are reminiscent of bouncing action of a ball.

15. "Chhand Gat" :-

This "Gat" is based on the metre of poem. It may be on the base of Marathi Vritta, Hindi "Chhanda" or a persian "Bahar".

Here, is a "Gat" composed by Ustad Amir Hussain Khan on the "Chhanda" of a Hindi poem :-

"Khilata Kamala Khila Jā ta Kamala Khila Gaye
Kamala Kucha Khilata Nā Khila Gaye
Zadata Patta Zad Jā ta Patta Zada Gaye
Patta Kucha Zadata Nā Zada Gaye
Udata Bhamwara Uda Jā ta Bhanwara
Uda Gaye Bhanwara Kucha Udatanā
Uda Gaye"

Translation of this verse on the Tabla will be as follows :-

1st Line :- Khilata Kamala Khila Jā ta Kamala Khila Gaye
Tabla bols :- Dhitata Takita Dhita Dhan Takita Dhita Kalā
..... Kamala Kucha Khilatana Khila Gaye
..... Takita Dhita Dhitatata Kita Taka
2nd Line :- Zadata Patta Zad Jata Patta Zada Gaye
Tabla Bols :- Dhitata Katta Dhita Dha-na Katta Dhita Kata
..... Patta Kucha Zadatana Zada Gaye
..... Katta Dhita Dhitatata Kita Taka.

Khansaheb has intelligently brought out import of this verse based on the overall "Chhanda", in his composition as follows :-

Tirkittaktā -nadhita Dhitakata-nadhage
Titakdadhanadhā ge Dingnanā -nadhā ge
Dhirdhirkaddhā -nadhage Dhirdhirkittad
Tirtirkittak Dhirdhirkittak Tirtirkittak
Dhirdhirkittak Tirtirkittak (Khali) contd..

He used to first recite the poem and then explain the nuance of each word, slowly unfolding the literary value, followed by the poetic precise reproduction on the Tabla. Spontaneous public applause which invariably greeted him thereafter, should have been seen to be believed!

I would now like to present a "Bandish" based on Persian "Bahar" (metre) or a poem.

The poem reads as follows:-

"Tere par se Zadne Lage Sharar
Na to Jā re Bulbule Jā ra Bas
Jalegā Kafas, Jalegā Kafas, Jalegā Kafas"

Here, the "Bandish" of the tabla is based on the metre and hence meaning of the poem carries secondary importance. Nevertheless, the literary import conveyed by my Ustad Ameer Hussain Khan may be described as follows:-

"Oh Bulbul! You have become emaciated and desperate, since you have lost half the wealth of your beautiful feathers. Beware of the sparks that flash from whatever little quantity of feathers which are left on your body. Your cage is going to burn out, burn out, burn out. Your despair is coming to an end. But will this enable you to fly and soar freely in the sky?"

The 'gat' based on and literally translated from the 'Bahar' of Persian Poetry, consists of 14 'Matras' in "Deepchandi" style or "Mishra Jati". The same runs as follows :-

"Dingna Trakadhet Dhitata Tā getita
tingana Naganaga Titata Dhā -natin
Ka-Ha Dha-natin Katta Dhā -natin
Katta | Dhā "

The composer, by employing "Aad Tihai" - (a complex "Tihai") has, no doubt, enhanced beauty of this "Gat"

"Dinganā Trakadhet Dhitata Tā rgetita
Tingana Naganaga Titata Dhā -natin
Ka-tnā tin Ka-ttita Dhā -nā tin Kā -tnatin
Ka-ttita Dhā -nā tin Kā -tnatin Ka-ttita | Dha"

16. "Tilai Manjedar Gat" :-

Three stages, viz uni-fold, 1¹/₂-fold and two-fold, form the essence of this "Gat". If started with a fast pace, 'Gat' may form multi-fold (more than three) also. Therefore, it is advisable to employ "Laya", which is traditionally popular and accepted by the composer. By and large, these "Gats" are bound in "Tryasra Jaati". Let us examine a "Gat" composed by Ustad Langde Ahmed Bux Khan Vrindavanwale of Lucknow Gharana :-

Unifold Kitdhe - - t Tirakitatak Dhā -ghidnag Taktirakita
Ghina-dhā -d Dhā -ghidnag Ghidnagdhage Tirakitatak
Tirakitatak Titaghida-na Ghidnagdhage Tirakitatak
Tirakitatak Ghidnagdha - Ghidnagdhage Tirakitatak
- (Khali .. continues)

-
- 1 1/2 fold Kitdhe-t-tir Kittakdhā ghid Nagtaktirkit
 Ghinā -dhā -ddhā Ghidnagghidnag Dhā getirkitatak
 Tirakittaktit Ghida-naghidnag Dhā getirkitatak
 Tirakitatakghid Nagdhā -ghidnag Dhā getirkitatak
 - (Khali .. continues)
- 2 - fold Kitdhe-ttirkittak Dhaghidnagtaktirkit Ghina-dha-ddhaghidnag
 Ghidnagdhagetirkittak Tirkittaktitghida-n Ghidnagdhagetirkittak
 Tirkittakghidnagha- Ghidnagdhagetirkittak
 - (Khali .. continues)

Gat - Kayada :-

The three salient features of "Gat-Kayada" are

- heavy bols employed as in the 'Gat',
- the vowels employed at the beginning and the end as in the Kayada and
- development evolved out of the specific sequence as in the 'Kayada'.

Let us now, examine a 'Gat-Kayada' composed by **Khalifa Ustad Abid Hussain Khan** of Lucknow Gharana :-

Dhā -dhā -ddha Ghidnagdhingin Dhagetrakadhinghid
 Nagdingnanakatā Dhā dhā -ghidnag Dhinaginadhagetraka
 Dhinghidnagding Nā nā katā tinakina
 Tā -tā -ttā Kidnaktinakin Tā ketrakatinkid
 Naktingnā nā katā Dhā -dhā ghidnag Dhinaginadhagetraka
 Dhinghidnagding Nanakatadhinagina

"Gat-ang-rela" :-

This is a composition based on the 'Ang' or weight of a 'Gat'. Initially, the original 'Gat' is played and after the forceful (????) words, clustered 'bols' are used for 'Rela'. Now let us see one 'Gat-ang-rela' composed by **Khalifa Nisar Ali Khan** - elder son of Ustad Haji Vilayat Ali Khan :-

Gat :- Dhā ...dhin Gindhindhagetraka Dhinghidnagdhin
Gindhindhagetraka Dhingindhingin Dhindhagetrakadhin
Gindhā getrakadhin Dhā getrakatinkin - Khali

The letters underlined above denote "Jarab". There is 'meend' after the initial alphabet "Dhā", while there is "Ghumak" wherever the words 'Nagdhin Gindhin', 'Dhinghin Dhinghin' are used. The skill of the artist lies in, how effectively he can integrate these 'meend' and 'Ghumak' in the 'Rela'

Gat-ang-rela :- Dh ā ...dhintir Ghittagdhintakdhatirghittag
Dhintirghittagtagdhintir Ghittagdhintakdhatirghittag
Dhintirghittagdhintirghittag Dhintakdhatirghittagdhintak
Ghittagdhathirghittagdhintak Dhathirghittagtintirkittak - Khali

Gat :- Dh ā ...dhir Dhirakitadhagetraka Dhinaghidnagdhir
Dhirakidhagetraka Dhinghiddhirdhir
Kitdhagetrakadhin Ghiddhirdhirkir
Dh ā getrakatinkin - Kh ā li

'Gat-ang-rela' :- Dh ā ...--dhirdhir Ghittagdhintakdhatirghittag
Dhirdhirkittaktakdhirdhir Ghittagdhintakdhatirghittag
Dhirdhirghittagdhirdhirghittag Dhintagdhathirghittagdhinta
Ghittagdhathirghittagdhintak Dh ā tirghittagtintirkittak
- 'Khali' -

The credit for composing the reply ('Jabab') of the earlier 'Gat-ang-rela' goes to Ustad Hussain Ali Khan - younger brother of Khalifa Nisar Ali Khan. He has freely employed therein 'bols' "Dhirdhirkittak". It is difficult to master this Gat-ang-rela unless practised persistently for a considerable period of time.

'Gat-tukda' :-

This is a "Bandish" which starts with 'Gat' and ends with 'Tihai' on 'Sam'. In fact, the old maestros - Ustads and Pandits - used to call 'Gat' to 'Bandish' which fell in the category of 'Gat'. 'Gat-tukda' or 'Gat-toda'. History records an interesting anecdote about Miyan Bakshooji who is said to have offered dowry to his son-in-law Ustad Haji Vilayat Ali Khan in the form of 600 Gats, during the wedding of his daughter Moti Bibi. These are known as "Dahej Gaten", one of which is as follows :-

Dhinghidnag Dhinghidnag tirakittak Takkd ā n -
 -Ghe-n- -Dh ā - Ghe-n - Dh ā Ghin ā kal ā
 Takdhin— -Traka Dh ā -dhin- Dh ā dhirdhir
 Kittaktirkit Dhatirkitdha ghidnagtirkit
 Dh ā dhirdhir Kittaktirkit Dh ā tirkitdha
 Ghidnagtirkit Dh ā dhirdhir Kittaktirkit
 Dh ā tirkitdha Ghidnagtirkit | Dh ā

A rational thinker may place this "Dahej Gat" in the category of "Gat-tukda", if 'Gat' and 'Gat-tukda' are carefully analysed.

"Manzdhar Gat-tukda"

I may present now a "Manzdhar Gat-tukda" composed by Pt. Biru Maharaj of Benaras Gharana. He has named this 'Bandish' as 'Prapat Gat'. This is based on the movements

of the river in different forms. It flows quietly, without noise on a plane, while it sounds furious when in spate. Again, when it runs across rocky, mountaneous terrain, its flow is uneven, while it falls down from a cliff at dizzy heights, it makes a deafening sound. The composition of 'Manzdhā r Gat-tukda' is based on this metaphor, indicating various movements and sounds of a river.

"Kittakt ā ... Kittakt ā Tinn ā kittak Dheenkda
Dheen-dh ā - Ghidnag Dhinagina Takdhin Dh ā -traka
Dhinaghida Nagdhin T ā getita Ghid ā -na Ghidnag
Dhintak Takita Kitatak Tinkina Taketraka
tinnakittak T ā ...kittak Dhinn ā Ge-na- Dhinna-
Ge-na- Dha-ge- Tirakit Dhinna Ge-na.
Dh ā getraka Dhinghid Nagdhin Dh ā getraka
Tinnakittak T ā -kittak Dhinagina Dh ā getraka
Dhinghid Nagdhin Dhagetraka Tinn ā kittak T ā -kittak
Dhinagina Dh ā getraka Dhinghid Nagdhin Dh ā getraka
Tinnakittak | Ta ā

I am tempted to share with you a very rare, yet beautiful 'Bandish' composed by Miyan Imambux Choodiyanwale :-

Dhirdhirkat Dhiradhira Kdadha-na Dh ā -ti-
Dh ā -dhi— Ra-dhi- Ra-ghi- Da-na- Ga-dh ā -
Dhi-radhi -raghid Nagdh ā - Dhirdhir
Ghidnag Dh ā -dhirdhir Katdhage titakat ā
Gadigana Dh ā dhirdhir Katdhirdhir Katdhirdhir
Kittakn ā n ā Kittakdhirdhir Kittaktakt Dh ā -dhirdhir
Kittaknana Kittakdhirdhir Kittaktakt Dha-dhirdhir
Kittaknana Kittakdhirdhir Kittaktakt | Dh ā

Author : Arvind Mulgaonkar, 10/3, Dimple Apartments, Jerbai Wadia Road,
Parel, Mumbai - 400 012.

THE MODES OF RHYTHMIC EXPRESSION IN CONTEMPORARY INDIAN AND WESTERN MUSIC

Miss Rebecca Stewart
University of Hawaii, Honolulu.

Rhythm is motion capable of being perceived as a succession of occurrences. It implies, in whichever context it is used, a series of regular or haphazard pulses, seen or heard to be at variance with the surrounding medium. Within the framework of the cosmos it is continuous and eternal. Within a more specialized sphere, such as music, art or literature, it implies a series of patterned impulses, the criterium for the use of the word "pattern" being the presence of one or more repetitions of a group of one or more pulses. For the remaining portion of this paper the above definition of "rhythm" will be used.

In order to do justice to a subject such as the modes of rhythmic expression within Indian and Western, or European music, it is necessary that one be an authority on both widely divergent systems. At the present stage of mutual study between Indian and Western musicians there are literally only a handful that can satisfy this requirement. That being the case I am not quite as hesitant about attempting to state a few generalities concerning both systems.

It will be my intention, then, to present a short enumeration of the present day rhythmic practices within both systems of musical expression. Philosophical and historical factors which I feel to be of either indirect or direct bearing will be included. I shall not attempt to present a series of parallels in order to convince you that a type of amalgamation is possible. This responsibility must lie within the realm of the practical musician well versed in both systems.

Traditionally, Western and Hindu metaphysicians have been at opposite poles in their conception of the relationship of forces within the cosmos. In his book *The Historical Development of Indian Music*, Swami Prajnananda states, "There is an organized and harmonized system behind the gigantic phenomena of the universe and everything in it, the sun, moon, stars and satellites are unceasingly working through this ordered system, and with a motive behind. This system is guided by a synthetic and universal law - that of cosmic energy or Kali." Rhythm and Tempo are the inherent categories of that Kali. This statement implies a control from outside, a scheme which is visualized, not as a sequence of minute patterns which, when linked together, form a larger pattern, *ad infinitum*, but as a completely regularized whole, the subdivisions of which are only smaller duplications of that whole.

According to Heraclitus, a fifth century B.C. Greek philosopher, there is a unity in the world but it is a unity resulting from diversity. I quote from Bertrand Russell's English translation of his works. "(The cosmos) is an attunement of opposite tensions, like that of the bow and the lyre..... In strife opposites combine to produce a motion which is dominated by a conception of cosmic justice which prevents the strife of opposites from ever issuing in the complete victory of either".

Although it may seem hardly necessary to stress the relationship of these two ideologies to the specific concept of musical movement, it cannot be denied that the two

rhythmic approaches are at great variance and that each system has, historically, kept within certain prescribed limits. limits which, only in small part, are shared by the other.

Sir Rabindranath Tagore states, "It seems to me that Indian music concerns itself more with human experience as interpreted by religion than with experience in an everyday sense. It disengages the spiritual from the happenings of life; it sings of the relationship of the human soul with the soul of things beyond. The world by day is like European music; a flowing concourse of vast harmony, *composed of disconnected fragments*. And the night world is our Indian music : one pure, deep and tender raga." With specific application to Indian rhythmic expression Tagore further states, "Rhythm is not merely in some measured blending of words, but in a significant adjustment of ideas, in a music of thought produced by a subtle principle of distribution, which is not primarily logical, but evidential." In perfect rhythm the art-form becomes like the stars, which in their seeming stillness are never still, like a motionless flame that is nothing but movement."

In order to justify the above quotes, an analysis of the individual elements of rhythmic expression is a necessity. Of *primary* importance is the existence of a basic time measure which is shared by both systems. Traditionally, Western rhythmic measurement has been based upon the principle of multiplication of the fundamental rhythmic pulses, and Indian upon that of addition. As an aside, I must state that I feel the Indian system of measurement to be more easily understood if visualized as a system of subtraction which is dependent upon the basic presence of a large rhythmic framework - that of the complete *avartan* or phrase. Nevertheless, both systems employ the basic rhythmic patterns of two and three pulses, or duple and triple beats, as they are called in the West. From these divisions all further elaborations are derived. You must remember that in Western music, rhythmic patterns are primarily manifest within the melodic and harmonic structure of the composition. Other than in jazz, percussive or drum instruments play a very minor part in our serious music.

Secondly, similar tempo or *laya* classifications are used in both systems: fast or *druta*, moderate or *madhya*, and slow or *vilambita*. There is, of course, a marked difference in the type of application within the separate systems, as you have no doubt already observed in the selections played by Mr. Skelton.

Thirdly, we are confronted with the presence of accent, the method by which emphasis is thrown upon a given beat. Though it may easily be stated that accent must be present within both systems, it is only in the Western school of composition that it is consciously expressed, and within which its function is to stress the contrast between the individual beats in a duple, triple or compound beat pattern. As an example of this technique, there is one compound rhythm pattern in Western music which is composed of six beats. Through the use of regular accentuation we may alternately put emphasis on the first, third and fifth beats, or the first and fourth beats of the pattern.

Fourthly syncopation, though actually a result of the interaction between two different rhythmic patterns having different tempos or *laya*, must be considered as a separate entity. Though in both systems it consists of a superimposition of a secondary pattern upon a primary pattern of beats, within the Indian system the purpose is to emphasize the ultimate unity which arises with the resolution of this discord, whereas in the Western system, the purpose is to intensify the irregularity. I will give an example of this later.

In reiteration I shall abbreviate these four aspects of rhythm: the basic duple and triple beat division, the tempo or laya, the accented or emphasized beat, and the syncopated structure. With these four aspects of rhythmic expression in mind, and being aware of the words of Heraclitus which stress the concept of the eternal interaction between two conflicting forces, and those of Tagore which stress a unity of the whole and of all the composite parts, we shall proceed to examine both systems.

Unlike the highly developed Indian Tala or rhythmic measure, which is completely dependent upon the unique properties of Indian verse, and which has evolved to its present stage because of the traditional method of preserving ideas and events for posterity through oral repetition, Western rhythmic measure is the direct result of both the evolution of a practical notation system and that of harmony, which is, generally, the presence of two or more voices or instruments performing two or more different notes simultaneously. Because with the inception of group performance it was most important to know exactly when each singer or instrumentalist should change his note, total rhythmic composition became little more than a succession of these minute changes, each one capable of being isolated in form from the next. As a result, today there are comparatively few restrictions governing the rhythmic unity of the entire composition. Partially because of this freedom, it has become gradually of more importance to stress rhythmic variation and conflict, rather than similarity and continuity, not only within the several large sections of a composition but also between smallest of rhythmic patterns. Mr. Skelton's words concerning the general ideal for contemporary compositions may be applied here: If it is different, it is great. I shall not attempt to trace the trends in the modes of rhythmic expression to the present day. For the purposes of this paper it is only necessary to show to what degree this conflict is emphasized in contemporary Western composition. I have no recorded examples to show and cannot possibly sing all the parts of a performing ensemble simultaneously. Therefore I can only give you a general impression. Please use the excerpts played by Mr. Skelton for comparison.

In Western rhythmic expression the accent and the duple and triple beat pattern must, for the sake of differentiation between pulses, be mutually dependent. This is unlike the Indian tala system, wherein individual pulsations are differentiated firstly by means of their irrevocable position within the framework of a complete and relentlessly unchanging rhythmic pattern called the *avartan*, and secondly, by means of the characteristic types of sounds or lack of sound which, upon the rhythmic instruments which support all musical expression, occur at predetermined intervals. It is within the context of the rhythmic mode, upon which these characteristics sounds and time units are dependent, that the idea of subtraction is seen most clearly. No matter what variety of pulsation is used within this structure, and the list is endless, the ultimate point at which the various duple or triple subdivision, added together, must meet, is pre-established. The use of the accent is only a matter of individual preference within this tightly organized and unified framework. Extreme variety, in the durational values and the sounds, add a depth to the pattern which the alternation between stressed and unstressed beats, having either legato (sustained) or staccato (short) sound duration, could never achieve. Because Western composition is oriented around harmonic complexity and has not availed itself of the possibilities inherent in a pitched percussive instrument having a wide range of sounds within its capacity (as in the mridangam and the tabla), the system must still be dependent upon the basic antithesis between duple and triple time: one strong beat and one weak beat, or one strong beat and two weak

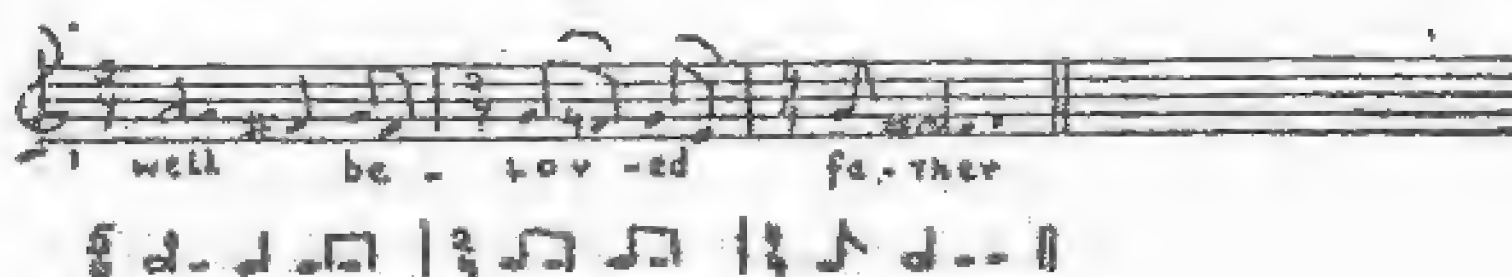
beats. As a word of explanation I must state that for the purpose of ensemble performance, within the written manuscript a vertical line is placed at certain prescribed positions, in order to indicate the point at which accented beat should fall. In an effort to make the conventional duple and triple beat more complex and irregular, some twentieth century composers have devised groupings of five, seven ten and more beats, but these patterns are made manifest through the alteration between the accented and unaccented beat, so in actuality are nothing but compound rhythms based upon a succession of two and three-beat patterns.

Examples are groups of 3 & 2, 3. & 2 & 2, 3. & 3 & 2 & 2. These groupings, as far as length and subdivisions of the phrase are concerned, are similar in structure to a few Indian talas, but in the detailed elaboration, they are one a much simpler plane, depending entirely on the shift in accent.

In another effort to make rhythmic expression even more irregular, some composers have omitted the bar line, which marks the regular accent entirely from the manuscript, thus making ensemble performance almost impossible and relieving the music of its one remaining feature of regularity-the accent. The rhythmic expression becomes nothing more than a series of irregularly spaced impulses, and in many cases is dependent upon the performer's interpretation.

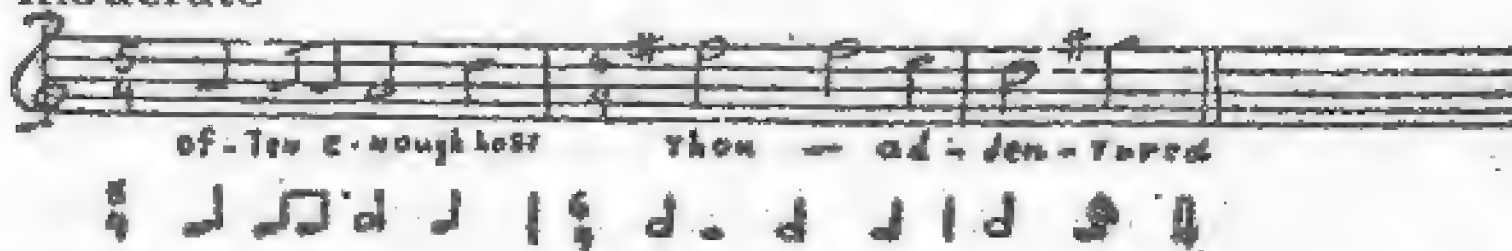
Another device is to place the bar lines at irregular intervals in the composition so that the accents will appear at first glance to be haphazard in occurrence. There will be one or two similar rhythmic patterns having one basic accent, replaced by others with different pulses and tempi. One example is a short section from the *Cantata Profano*, by Bela Bartok:

agitato



Or from *Songs of Farewell*, by Delius:

moderato

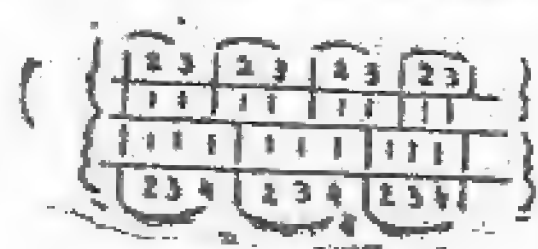


Within conventional rhythmic patterns, the regular beat, that of two of or three, may be camouflaged or displaced by other patterns which do not conform to the indicated scheme. An example is a section of the "Passacaglia" from *Peter Grimes* by Benjamin Britten:

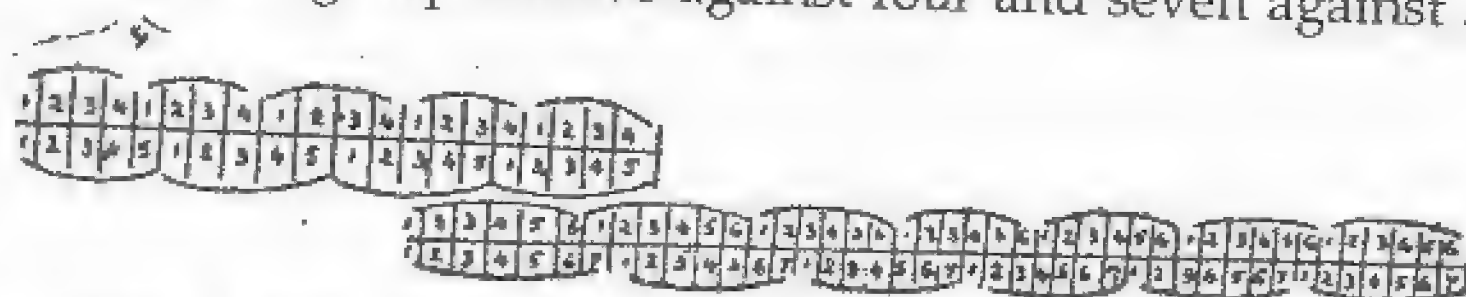
Andante moderato



A very interesting development, and one which adds a new dimension to Western rhythmic expression is the use of two or more different accent patterns against one another, by different members of the ensemble. Ravel's *Piano Trio* use beats of three against four:



Stravinsky's *Petrouchka* uses groups of five against four and seven against six:



Though the type of syncopation is purely one of cross accents resulting from the superimposition of one set of regular accents upon another, the fact that at regular intervals the two patterns coincide brings this method closer than any other in current use to approximating the type of syncopation used within Indian music. Once the laya and the tala are set, an endless number of parallel rhythmic sequences may be performed, the only general requirements being that firstly, at a predetermined time, the two rhythmic patterns resolve themselves into one, and secondly, that the rhythm not be changed within the avartan or section. I have taken an example of this from my own tabala lessons.

Within a large time unit of sixteen matras or beats (the particular succession of sounds being known as trital or tintal another sequence of twelve matras (called ektal) may be played twice.

This results not primarily in a shift of accent, though this is the only quality a Western notices when first hearing the dual pattern, but actually in a subtle displacement of the types of sounds heard. This, obviously, presents an endless numbers of potential variations:

+
Dhin/ /dhin/ /°dha/ ge / ' te re / ke ta / ² tun/ / na/ /
Dha / / /dhin/ / / dhan / / / / / / /

⁰ kat/ /ta/ /³dha/ ge / te re / ke ta / ⁴dhin/ / na/ /
dha/ / /dhin/ / / dhin/ /dha/ / / /

+
⁺ dhin/ /dhin/ /⁰dha/ ge / te re / ² ke ta / tun / /na/ /
ta / / /tin/ / / tin / / / ta / / /

⁰ kat/ /ta/ /³dha/ ge / te re / ke ta / ⁴dhin / /na/ / / /
dha/ / /dhin/ / / dhin/ /dha/ / / / / /

Even within this cross rhythm the basic pulse or akshara is never once lost or distorted.

There is one aspect of rhythm which is inherent in every type of manipulation which I have previously mentioned, and that is laya or tempo. Though the three divisions of speed-fast, moderate and slow-are generally observed within both systems, here the similarity stops. While at certain times in the Indian Composition, the laya will be slowly increased, its most common appearance is within the individual avartan. At this level it consists of a series of three mathematically proportionate speeds: Vilambit or slow; madhya, or twice as fast; and drut, or four times as fast. Because of this exactly proportionate increase in speed, it is always possible to recognize the same underlying pattern of beats throughout the entire composition, thus producing a unity in both the detailed and the broad sense. An example is a tukrda (a type of rhythmic elaboration) in tintal:

Dha/ge/te/te/dha/ge/te/te/krda/dha/te/te/dha/ge/te/te/krda/dha/
te/te/dha/ /krda/dha/te/te/dha/ /krda/dha/te/te/krda/dha/
te/te/dha /krda/dha/te/te/dha/ /krda/dha/te/te/krda/dha/te/te
te/te/dha/ /krda/dha/te/te/dha/ /krda/dha/te/te/ /Dha/

In vilambit laya, this tukrda takes four avarti; in madhya laya, it covers two; in drut one.

As you have undoubtedly noticed in several of the Western compositions you have already heard, the tempo may fluctuate at random. It may slacken after becoming accelerated, a completely foreign phenomenon within Indian music. This brings to the medium, already full of irregular rhythmic units, another device for creating disconnected movement. You have heard this in the composition *Time Cycles* by Lucas Foss.

It would not be incorrect to deduce, at the conclusion of this paper, that within the context of contemporary Western composition the actual rhythmic impulse is thought to be, as Deryck Cooke stipulates in his book *The Language of Music*, a form of physical energy into which the current of the composer's emotion is converted by the act of creative imagination (just as, without the intervention of that faculty, it might be converted into a vocal utterance or a physical movement), both of which are highly irregular in structure. As conflict and discord are inherent qualities of human emotion and action, so within the realm of Western musical expression, must they be constantly expressed in new and increasingly more extreme forms. This fact is made obvious in Mr. Skelton's talk on electronic music.

This motivating ideal could not be more greatly removed from that expressed within Indian music. In closing I quote Mr. Tagore once again. "Our music draws the listener away beyond the limits of everyday human joys and sorrows, and takes us to that lonely region of renunciation which lies at the root of the universe while European music leads us to a variegated dance through the endless rise and fall of human grief and joy".

(Courtesy: Madras Music Academy, Journal Vol. XXXV 1964, Parts I-IV)

PERCUSSION ENSEMBLE OF PERCUSSIVE ARTS CENTRE

Indian music had identified several percussion instruments which largely accompanied different forms of musical expressions. The Sociobiological necessity of percussions in music, is a fact established of late, but the ancient Indian musicians had identified and immortalised the necessity of percussions at the rim of folk-lore and classical overtones.

The Indian percussion instruments could be segmented and applied in different demographic and social situations such as folk-lore, temple rituals and indoor classical concerts where each form had its own charm and methodology. For instance, Mridanga, Khanjari, Ghata, Morching (Karnatak) and Pakhwaj, Tabla (Hindustani) are exclusively used in indoor classical concerts, whereas sammela, Chande, Dolu (Thavi) and Cymbal (Thala) are representative of the folk-lore and temple ritualistic forms. As for the utility, the folklore forms largely remained out of the realm of the classical forms, for they neither had an identifiable shruti nor a definite set-pattern. Nevertheless the folk-lore sound patterns had an organic amalgamation with the culture that had sustained it and therefore, till recently very few attempts were made to synthesise these two forms of percussion instruments. Till recently, percussions were considered only for supportive role, and only recently it is recognised that percussions have an independent identity of their own, as in Western ensembles.

This presentation is under a project of "Professional groups for specified performing arts covering rare forms and other traditional forms for music ensembles-orchestrations". This PERCUSSION ENSEMBLE is planned for presentation cum Video taping/audio-taping for preservation and possible analysis for further innovations and development of these thematic expressions. This is an attempt of blending these hitherto different forms of percussion where the charm of folklore is not dispensed at the cost of tone value. To drive this idea home, tabla tarang had been included in the ensemble where rhythm and melody are given the requisite priorities. For the first time, Gethu Vadya, an ancient stringed percussion instrument is included. Unlike others, Gethu Vadya is the only stringed percussion instrument, a shruti vadya and a taala vadya. The other instruments used differ in sound, their timbre, texture, and attempt to strike a balance between classical norms and in giving an independent identity to these instruments. The artistes conditioned mainly to classical music are attempting to look beyond into new rhythmic areas and innovations-adventures. This earnestness has to match with proper thought and planning and also create an awareness into the potentialities and also limitations of the different instruments.

Future attempts include innovations into electronic instruments and computerised music etc. Some instruments practiced by other backward community members are also put to use.

LAYA VRUSHTI

'Laya Vrushti', which means a shower of rhythm, is the first in a series of Audio Cassettes planned to exclusively present some of the innovative thoughts mentioned earlier. In three parts, Laya Vrushti presents an innovatory item LAYA SAMMILAN, followed by a classical rendition, MRIDANGAM SYMPHONY, and the conventional percussion round with a blend of different Instruments named PERCUSSION ENSEMBLE.

Laya Vrushti attempts to reveal the potentialities of the related instruments and stimulate exploration of new dimensions in music. The interesting feature of this presentation is the individual contribution made by each member to produce an overall enjoyable performance. The variety in the items presented and the innovations attempted establish a step towards the identification of the independent personality of each instruments.

This was released by "Sangeetha" Master recording Co, Madras.

LIST OF PUBLICATIONS and details thereon:-

1. Great Laya Vaadyakaaraas of Karnatak Music by B. M. Sundaram (Talk on 2.6.1985), Released on 1.6.86 Rs. 10/-
2. The Art & Science of Tabla by Pandit Nikhil Ghosh (Demo on 31.5.87 out of print)
3. Kannada Saahityadalli Taalavaadyagala Ullekha in Kannada by B. V. K. Sastry (Talk on 5.9.95), Released on 1.6.87 Rs. 10/-
4. Taala Sangraha (Compliation of data for over 1200 Taalas) by B. M. Sundaram, Released on 31.7.87(out of print)
5. Psychology of Laya by Prof. S. K. Ramachandra Rao (lecture on 22.9.86), Released on 1.6.88 Rs. 10/-
6. Taala Dasa Praanaas by S. R. Janakirman (lecture on 31.5.82) Released on 1.6.88 Rs. 10/-
7. Lecture Jewel Casket, Vol 1 Edited by Bangalore K. Venkataram, Lectures by T. Sankaran (30.5.82), V. K. Narayana Menon (29.5.83), Ashok Ranade (27.5.84), Pandit Nikhil Ghosh (1.6.86), Released on 4.6.88 Rs. 20/-
8. Chandassinalli Taala Layagalu by Prof. M. Rajagopacharya, in Kannada (Talk on 4.9.88) Released on 4.9.89 Rs. 10/-
9. Devotional Music by Late P. V. Rao. Released on 30.5.89 Rs. 10/-
10. Pallavigalu, Key-note address in Kannada by R. K. Srikantan on 1.1.88 - released on 31.5.89 Rs. 10/-
11. Kanakadaasara Keerthanegalu, in Kannada (Study Circle in 1989 by R. K. Srikantan, 8 krithis in notation. Released on 28.5.90. Rs. 10/-
12. "Yakshganadalli Talagalu" in Kannada by Hosthota Manjunatha Bhatta (Talk on 19.9.89) (Relased on 30.5.90) Rs. 10/-
13. "Msyore Veena Paramapare" in Kannada by Dr. V. Doreswamy Iyengar (Talk on 14.10.87) (Relased on 31.5.89) Rs. 10/-
14. Kancheepuram Nayana Pillai, Monograph by B. M. Sundram, (Released on 31.5.90) Rs. 10/-
15. Inaugural Address of Talavadyothsav '89 - Monograph by Dr. Raja Ramanna on 27.5.89, (Releasedon 8.7.90) Rs. 10/-
16. Manipuri Tala System by Guru Bipin Singh (Talk on 29.5.89) (Released on 26.5.91) Rs. 10/-

17.	Comparative study of Talas in Hindustani and Karnatak Systems by T. V. Gopalkrishnan, (Talk on 29.5.90)(Released on 31.5.91)	Rs. 10/-
18.	Decennial celebrations (Lecture session on 31.5.92) (Prof. R. Visweswaran, Dr. Surochana Rajendran, B. M. Sundaram, K. S. Mahadevan)	Rs. 15/-
19.	Problems of Mutual appreciation of Hindustani & Karnatak Music (Proceedings of Seminar on 27.5.93)	Rs. 15/-
20.	"World Music" by Prof. R. Visweswaran (released on 25.5.96)	Rs. 10/-
21.	Monograph on Needamangalam Meenakshisundaram Pillai (Released on 28.5.90)	Rs. 10/-
22.	Monograph on Tanjore Vaidyanatha Iyer (Released on 29.5.90)	Rs. 10/-
23.	Proceedings of Talavadya Seminar - 2 (on Khanjari and Ghata) (Released on 28.5.98)	Rs. 30/-
24.	Proceedings of Talavadya Seminar - 3 (on Dolu, Morching & Gethu) (Released on 31.5.98)	Rs. 25/-
25.	"Tala & Laya" - Dr. S. Ramanathan (Released on 28.5.98)	Rs. 120/-

AUDIO CASSETTES released :

1.	Vocal Recital of compositions of T. Chowdiah (rendered by M. S. Sheela, S. Shankar, G. R. Jaya, Padma Gurudutt, R. K. Padmanabha & D. V. Nagarajan & T. S. Sathyavathy)	Rs. 30/-
2.	Veena recital of Veena Kinhal (daughter of Veena L. Raja Rao)	Rs. 30/-
3.	LAYA VRUSHTI - Percussion Ensemble of Percussive Arts Centre P4 ECD 4338 released by SANGEETHA RECORDING CO., Madras	Rs. 38/-
4.	Classical Melodies - Flute - V. Ananth P6 ECDB 748 released by Sangeetha Chennai	Rs. 45/-
5.	Swarna Bharathi - patriotic songs in Sanskrit composed by Mayuram Vishwanatha Sastry, Directed by : S. Shankar, Singers: S. Shankar, P. Sashidhar, Ajai, C. R. Amarnath, Swarna Shankar, V. Kalavathy, N. R. Sharada, Lakshmi Subramanya	Rs. 35/-
6.	Karnatak Melodies on Angklung, Indonesian Bamboo instrument by H. S. Anasuya Kulkarni.	Rs. 35/-

"....We have every reason to be proud of this Centre, and to me it is a matter of deep appreciation to associate myself with the centre..." ".... The only way to know about our Tala system is through this publication (Taala Sangraha), which is brought out by the Percussive Arts Centre Bangalore. The Centre is living upto its name by publishing this. I wish the Centre all progress and prosperity...."

".... The Percussive Arts Centre has been doing Yeomen services in the promotion and dissemination of greater awareness and the knowledge of various aspects of percussive arts and instruments among musicians, scholars and rasikas alike. This seminar is intended to be a part of the continuing services to the music loving public as well as to classical music that the centre has been rendering all along...."

Valedictory address of Taalavaadya Seminar - 1

Sangeetha Kalanidi R.K. Srikantan

"..... The object of the Percussive Art Centre is to highlight these distinct characters and the fascinating world opened up by these instruments and make the people really conscious of the vast potentialities of these instruments and the beauty they reveal. Through numerous programmes, the Centre has highlighted interesting features and land marks of this fascinating rhythmic world during these past several years...." ".... even the range and quantum of the present collections itself is an achievement which is certainly a valuable contribution in the realm of rhythm in Indian music."

Seminars where different Talavadyas are taken up as the main subjects. This is a grey area not only to music enthusiasts but also musicians themselves. The instruments are studied from different angles like the Historical, Technical, Scientific, Aesthetic etc. ... These seminars, not only enlighten the public but also enrich knowledge available about these instruments and this lead to further improvements.

Preface to proceedings of Talavaadys Seminar - 2.

Sangeetha Kalarathna B.V.K. Sastry

"..... I am in receipt of the Quarterly Newsletter of this Percussive Arts Centre.It is really good and fine that such a newsletter comes out from Percussive Arts Centre, Bangalore"

Padmasree Umayalpuram K. Sivaraman

"... Sri Bangalore K. Venkataram, our popular percussionist and also the Director of the Percussive Arts Centre, deserves compliments for his persuasive encouragement to Sri Sundaram to work out this unique volume (Taala Sangraha), for publication by the Percussive Art Centre. The Centre, although still in its tender years, has already done well in the cause of Percussive art and its research. My best wishes to the Art Centre, with fond hope that its progress would be better and higher still with march of time..."

Ganakala Bhushana A. Subba Rao

"... All in all, it was a very useful festival, one which has made the need and presence of an institution devoted to "Talavadya" felt emphatically. There is no doubt that it has attracted the attention of fresh blood which should augur well both for our classical music and the Centre in particular, which means the purpose of the festival has been served"

The musical tree in India has two basic divisions - Raaga and Taala, while raaga governs its melodic element, taala helps to maintain the balance... Yet taala has not received as much attention on the academic level. It is to fill this lacunae that the Percussive Arts Centre was founded. In a short span of about 10 years, the Centre which is only one of its kind in the country, has done pioneering work in creating awareness on the various aspects of the system as also the characteristics of the different percussion instruments or Taalavaadyas"

Preface to proceedings of Talavaadya Seminar - 1.

Karnataka Kala Thilaka S.N. Chandrasekhar

"... Percussive Arts Centre who have been organising planned programmes to highlight the role of laya in music have been doing remarkable service in this direction and I wish the centre an unprecedented success in their efforts...."

Sangeetha Kalamidhi T.K. Murthy

"... I am happy that the Percussive Arts Centre, perhaps the only organisation in our country of this type have come forward to bring to light such a useful publication. I wish their efforts all success..."

Prof. U.N.G. Dakshinamurthy, Govt college of Music, Madras

... I hereby record my deep sense of appreciation of your venture of promoting the cause of performing arts and artistes You may get a feedback by arranging a series of lectures with demonstration on Indian drumming

*Dr. K.N. Bhowmick, Prof. Dept of Applied Mathematics,
Institute of Technology, B.H.U, Varanasi*

The cause you are trying to promote is admirable. I have the greatest regard for the art of rhythm ... Yours is the only institution of its kind in the country; at best there is no parallel of it in North India.

Prof. S.K. Saxena, Roopnagar, Delhi - 7

Services rendered by the Percussive Arts Centre, to the fulfilment of the percussive arts of India is unparalleled in India. During the last 15 years, the Centre has placed the Meastros of the Mridangam in equal status with the Vocalist, honoured their art and dedication with awards and public acclaim. Along with the practice of the art, the Science of the art and the synthesiser of laya and tala have been the topics of Lec-dems, helping deeper understanding and appreciation of this art. The Centre remains very active through the year, - as one can see from the number of programmes organised in a year. It covers a wide span of artistic and education oriented events.

I have only one or two suggestions to make. More lectures on Comparative study of Carnatic - Hindustani tala systems will bring better appreciation of the respective classical arts, and cultural affinities and richness of diversities. Monographs should be so printed in a pre-determined format, which will permit their binding together later, in the format of a book. My special compliments to Sri Bangalore K. Venkataram, the Executive Director of PAC, whose services to PAC are an example to other workers in the field of music, art and culture elsewhere.

Prof. R.C. Mehta

Indian Musicological Society, Baroda

Your Centre for percussion arts has been doing yeoman service to the appreciation of music for several years. It is clear from the dedication of hard working people like you in Bangalore that the Centre is recognized as a premier institution for tala vadya.

The list of publications from the Centre and the galaxy of worthy awardees who have been recognized by the Centre are very impressive indeed

A. Madhav, Pittsburgh, USA
